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LAKE CARRIERS' ASSOCIATION.

To consider and take action upon all general questions relating to the navigation and carrying business of the Great Lakes, maintain necessary shipping offices and in general to protect the common interest of Lake Carriers, and improve the character of the service rendered to the public.

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KEEP A LOOKOUT ON THE BEACH.

The chief of the weather bureau desires to call attention to the investigation of the currents of the Great Lakes during the seasons of 1892-3, and would request the assistance of all interested persons in advancing this important work. Vessel masters have kindly floated in the different lakes bottles containing a paper giving the position where the bottle was floated and date of floating. A number of these bottles has been recovered, but there is still a large number yet to be found, and it is thought possible they are now lying on the beach, and it is requested of all persons who frequent the lake shore to keep a lookout for these bottles, and when found please complete the paper in the bottle, inclose it in the penalty envelope (which requires no postage), and forward it promptly to Washington, when the finder will receive proper acknowledgment. Many interesting features have been developed from the return of these bottle papers.

THE AMERICAN LLOYD'S REGISTER.

The American Lloyds, a new vessel register, appeared in competition with Inland Lloyd's on Friday last. A brief comparison of the new register shows that a general reduction of about ten per cent. has been made in valuations. The new register appears more complete, bulkier and is better bound than the Inland Lloyds and seems to be fair in both valuations and ratings. It is issued by the American Shipmasters' Association, of New York.

RIVER AND HARBOR APPROPRIATIONS.

Statement showing total amount of appropriations for all rivers and harbors, with the number of vessels (of all classes,) their value, resistered tonnage, and freight movement, as reported for the census year, allotted to their respective divisions.

Locality.	Amounts.	Vessels.	Value.	Tonnage.	Cargoes.
The Great Lakes.	$42 036 327	2,784	$48 809,750	924 472	51.203.106
Atlantic coast...	57.773 904	9,230	119.943.311	2.197.932	82 408 168
Gulf of Mexico...	20 407 011	833	3.518.350	62 830	2 567,891
Mississippi Valley	76 827 463	7,453	15 335.005	3.393.379	29.405 046
Pacific coast.....	9 999.165	1.842	23.067.370	441.939	13 449 927
Total.....	207.043.870	22,142	210 673.786	7,020,552	179 034 138

NOTICE TO MARINERS.

UNITED STATES OF AMERICA—NORTHERN AND NORTHWESTERN LAKES.

ST. MARY'S FALLS CANAL, N. PIER, LIGHT—Notice is hereby given that on the opening of navigation, 1894, the light at St. Mary's Falls canal, north pier, light station, west entrance to St. Mary's Falls canal, Michigan, will be changed from a fixed red light of the sixth order to a fifth-order light showing fixed white varied by a red flash every minute.

WAUGOSHANCE LIGHT—Notice is hereby given that on the opening of navigation, 1894, the fourth-order light at Waugoshance light-station, on the northwest end of Waugoshance Shoal, northeast end of Lake Michigan, Michigan, will be changed from a fixed white light, varied by a white flash every 90 seconds, to a fixed white light varied by a white flash every 45 seconds.

EAGLE HARBOR LIGHT—Notice is hereby given that, on the opening of navigation, 1894, the fourth order light at Eagle Harbor light-station, northerly side of Keweenaw Point, Lake Superior, Michigan, will be changed from a fixed white light varied by a white flash every 2 minutes to a fixed white light varied by a white flash every minute. The order of the light will not be changed.

RASPBERRY ISLAND LIGHT.—Notice is hereby given that, on the opening of navigation 1894, the fifth-order light at Raspberry Island Light-Station, on Raspberry Island, one of the Apostle Islands, Lake Superior, Wis., will be changed from a fixed white light, varied by a white flash every 90 seconds, to a fixed white light, varied by a white flash every minute.

The order of the light will not be changed.

By order of the Light-House Board.

JAMES A. GREER,
Rear-Admiral, U. S. N., Chairman.

Office of the Light-House Board, Washington, D. C., March 22, 1894.

THE LAKE UNDERWRITERS ANNUAL MEETING.

The lake underwriters held their annual meeting last week in Cleveland for the first time in several years. Among those present were P. H. Fleming, C. A. Mac Donald, J. J. Rardon, J. C. Gadsden, C. W. Elphicke, A. L. Fitch, W. H. Calbeck, Geo .L. McCurdy, J. G. Orr, J. J. Clark, David Vance, Frank L. Vance, W. J. Sandrock, Henry S. Still, Capt. Riley and J. H. Platt, of New York. Mr. Platt represents the Union Marine, and was tendered the honor of presiding.

Mr. E. Platt Stratton, chief engineer surveyor of the American Ship Master's Association was in the city in the interests of the American Lloyd's Register, a new classification book for the lakes exclusively which that association has compiled this season for the first time.

The book contains a set of rules for the construction of steel hulls, another for wooden hulls, and a third for machinery, and the system of valuations similar to that in use by the Inland Lloyds.

William Sandrock, Frank L. Vance, Henry Still, George L. McCurdy and J. H. Platt were appointed a committee to formulate a new hull tariff.

The action taken at the meeting was as usual kept quiet and no figures were made public on the plea that they were not in shape when the meeting adjourned on Friday night.

The secretary, Mr. Bigelow, of Chicago, who represents the St. Paul Fire and Marine Co., said after the meeting that it had been very harmonious, more so than for some years. The tariff which has been formulated, is more just to both the underwriters and the vessel owners, and one class of tonnage will not have to pay excessive rates to make up for losses suffered with another class of boats. There was also formulated a new coarse freight tariff, which has received the signatures of the companies doing business on the lakes. This is slightly higher than the rates previously in force. The hull tariff was slightly altered, although the rates on the higher class of tonnage were allowed to remain the same. The rate has been increased somewhat in the older and lower classes of tonnage, and this is about all that was done to the figures. Some of the concessions heretofore made for considerations, such as throwing off the one-third new for old clause, have been granted without any equivalent. The lake underwriters' plan has been to keep the large volume of business confined as far as possible to the domestic companies, and to prevent, as much as in their power, any further incursions on the part of the foreign companies, who have already secured such an extensive foothold on the lakes. One of the evils which it has been desired to correct is that of one class of tonnage paying high premiums which went to pay losses of lower premium boats. It was the sense of the meeting to adjust this so that the classes of boats which are the heaviest losses will have to pay the premiums in proportion.

The "touch-and-go" provisions of the policies, which dealt with cases where, in shallow waters, the boat injured receives bottom damage without fetching up, were not changed at all, although there has been a good deal of discussion, and some threatened litigation over this clause of late.

WELLAND CANAL.

It has been officially announced that the Welland canal will open for navigation on the 19th of April.

Superintendent William Ellis, deputy superintendents John B. Smyth, James Dill, Andrew Hamilton, harbor master Charles Carter and about 30 lock tenders and bridge swingers of the canal have been dismissed. No reason has been assigned for the dismissal unless on the grounds of economy.

NEWS AROUND THE LAKES.

CHICAGO, ILL.

Special Correspondence to The Marine Record.

The Dunham Line tug Robert Tarrant towed the schooner Mary D. Ayer to the Illinois Central elevator on Tuesday to load corn.

B. F. Davison, vessel agent, received a telegram from Green Bay City on Monday, stating that four inches of new ice had formed on the bay.

W. D. Young, vessel owner of Bay City, was in Chicago Tuesday.

Capt. J. W. McKay has been appointed to the command of the steamer Robert Holland, of the Bigelow fleet.

The steamer John Duncan, Capt. G. W. Flood, arrived here light from Milwaukee Monday evening.

The barge Mattie C. Bell arrived here light from Milwaukee in tow of the I. T. Line tug D. P. Hall, Saturday. She was taken to Armour's elevator at Goose Island to load grain.

J. G. Keith & Co. chartered the steamer Sachem and consorts Mary D. Ayer and George Sturges on Monday for corn to Port Huron at 1¾ cents.

The schooner yacht Crusader is in one of Miller Bros.' drydocks and will receive a thorough overhauling.

Capt. Simonson, of Whitehall has arrived here to take charge of the schooner Resumption to which he has been appointed master by the Ford River Lumber Co.

There is a large army of engineers here getting the machinery of the large grain laden fleet fitted out in readiness for an early start. A good many captains are also arriving.

The Anchor Line steamers at this port are looking very gay in their new dresses green and white paint with red streaks of paint on their wales, they are all loaded with grain and have their engineers on board getting their machinery ready to start.

The steamer H. Luella Worthington, Capt. James Travis, and consorts William Jones, D. R. Martin and Bronson left here Monday evening for Menominee on their first trip this season to load lumber for this port.

The Parker & Millen fleet will be the first of the grain laden fleet to leave for Buffalo. They will start Sunday night and will comprise the steamers Iron Duke, Iron King, Iron Age, Iron Chief, A. A. Parker, John Oades and Minneapolis and their consorts Iron Cliff, Iron City, Iron Queen, Iron State, B. W Parker, Redwing and Sandiego.

The Lake Carriers' Association opened their office on Monday, March 26th, a week earlier than they intended, in consequence of the early opening of navigation. Shipping Master Nesbit is already busy shipping crews.

The Goodrich Co.'s sidewheel steamer Muskegon, Capt. Carus, arrived here Tuesday morning from Manitowoc and was at once placed in commission. She will, in connection with the steamers City of Ludington and Menominee, form a daily line from Chicago to Milwaukee and Manitowoc, twice a week to Sturgeon Bay and intermediate ports and once a week to Green Bay and Menominee. The Co.'s steamer Atlanta, Capt. William Nicholson, will arrive here Monday, April 2, and will commence her season's running between Chicago, Grand Haven and Muskegon.

The steamer Charles Reitz, Capt. David Curran, Jr., which arrived last Friday afternoon with lumber from Manistee on her first trip this season, sank in the river just above North avenue bridge. She struck a sunken log at the C. M. & St. P. railroad bridge. Her deckload was taken off and a diver went down on Saturday morning and patched up the hole, which was found to be about 6 feet below the water line on the port side aft. Then a steam pump was used to pump her out and after she was taken to Miller Brothers' and placed in drydock and received repairs.

A fire was discovered Sunday in the forecastle of the schooner C. P. Minch, laying near Madison street bridge. The fire was soon extinguished and the body of an unknown man was found, who was burned to death. The presumption is that he went to sleep while smoking his pipe and his clothes caught fire.

The Marine Engineers Association have opened an office for the season at the Shipmasters Hall, No. 2 S. Market street, where masters, owners and chief engineers can secure any help they need by telephoning Secretary Ponsonby, who is in charge. I am requested to ask the courtesy of the publishers of marine, mechanical and engineering journals in forwarding occasional copies of their journals to M. E. B. A. Chicago headquarters at above address

The Chapin mine, one of the largest ore producers in the Menominee range and considered the most valuable, is to be sold for a debt due the Wisconsin Marine Bank & Fire Insurance Co., of Milwaukee, and foreclosure proceedings have been commenced against the property. The amount claimed is $86,000, money loaned on a first mortgage. The total indebtedness, including the $86,000, is said to be about $800,000. WILLIAMS.

CLEVELAND, O.

Special Correspondence to The Marine Record.

Capt. John Warner has left for Amherstburg to fit out his two little vessels Bailey and Maple Leaf for the Pelee Island trade.

Capt. F. D. Perew, Ashtabula, O., has been visiting Cleveland for several days while on his way to join his steamer at Chicago, being due there April 1.

Capt. William S. Mack is now on his return from a tour through the Southern states and the Pacific Coast. He is expected to reach this port April 1.

The propellers Swain and Johnson and the Schooner Helvetia have been transferred from the Cleveland district to Sandusky and will in future hail from Fremont, O.

The schooner Queen City, owned by Capt. C. E. Benham, looks first class with her reduced spars. She has been re-masted and still carries three fidded top-masts and is in excellent shape for the season's work.

The municipal officers are to be congratulated on their movement to dredge the river this season before navigation fairly opens. Formerly dredging was left until a number of vessels had grounded and lost valuable time as well as incurring the expense of a tow bill. A knowledge of this did not increase the popularity of the port among heavy carriers.

United States Marshal sold the steamer W. P. Thew on Tuesday to satisfy several claims of indebtedness against the boat. She was bid in by the Marine bank, of Cleveland, who held a bottomry bond on the steamer for a considerable sum. It is understood that in addition to the purchase price of $3,600 the bank will settle several minor claims which constitute prior liens on the steamer. The Thew had an insurance valuation in last year's Inland Lloyd's Register of $10,000, rating B1. She was owned by Thew and others of this port.

Capt. W. W. Brown, last season master of the Choctaw, will command the big steel freight steamer being built at the yards of the Chicago Ship Building Co. The new boat will it is understood be managed in the office of Pickands, Mather & Co. Work on her is being hurried and she will be ready for business the 1st of August. She will have gangways and appliances for handling package freight. Capt. Brown is generally regarded as being one of the most promising young shipmasters on the lakes and it is to be hoped that his fine new command will add laurels to his already well earned honors.

The coarse freight tariff has been received by local insurance agents and owners at this port. I note that 25 per cent is added on B1 class for coal and ore and any lower rating is prohibited from insuring. On rails and pig iron anything below A2 is prohibited. For the first passage down with grain from Chicago or Duluth to a port of discharge 10 per cent of season rate is allowed, but figures for April have not yet been given. Although there is a strong inclination to hold off insurance to May 1, especially if a liberal concession was offered by the underwriters.

The successful candidate for the local assistant inspectorship of hulls at this port was Henry E. Judson vice Capt. Sam Gould, Mr. Judson is well known on the lakes, having sailed as mate for a number of years, part of the time in the Bradley fleet with Capt. Nick Mulholland. He is a son of Capt. George Judson, one of the best known of the past generation of lake vessel men, who died a few years ago. Mr. Judson has attained to an office which I understand he has long desired to hold, although the wonder is expressed among vessel men that the well known ability of Capt. James Stone was not recognized in this appointment, especially as he had the best possible endorsements in his candidacy for the office, and his long and successful experience eminently entitled him to the position.

The firm of Murphy & Miller has been awarded the contract to build the new fueliing scow for Pickands, Mather & Co. Nearly all of the shipbuilding concerns on the lake were bidders for the work and bids ranged from $7,800 to $10,000. Laird & Son, of Ashtabula, put in next to the lowest bid. The dimensions of the vessel are to be 180 feet long, 33 feet beam and she will have a draft of 6 feet 9 inches. She is to be built entirely of pine except the sides and ends which will be of oak, also to have two extra heavy gunwales with rails on top for a traveling derrick to work on. Her coal capacity is to be 625 tons arranged in 125 buckets each containing five tons The buckets are somewhat new in principle, having a drop bottom consisting of two hinged doors for speed in handling fuel coal.

MANISTEE NOTES.

Special Correspondence to The Marine Record.

The little tug James Brooks has been completely rebuilt during the winter, by her owner, and is now receiving the finishing touches as she lies in the river.

The towing business never opened out of this port so early before. Capt. Smith has two tugs in commission and four or five of the Canfield Line have been working for the past week.

The steamer Skater, which burned last spring while bound north to Petoskey, has been bought by Capt. Richardson, of the Hilton, and has been rebuilt at the Manistee shipyard this winter. There was nothing left of the old hull but the bottom.

The propeller City of Marquette was in last week. It was her last trip before going into dock to fit out for the summer season. She will be on her route between Kewaunee, Manistee and Frankfort about April 20th.

The steamers Petoskey and Puritan, now of the Northern Michigan Transportation Co., have each received new funnels and are fitting out with the usual care. Capt. Robertson will have command of the Petoskey, and Ed. O. Henderson will act as clerk.

The ice has been out of the upper harbor for about two weeks. It left so suddenly as to seriously affect the lumber stock needed for summer use. There has been five cargoes of lumber shipped already, but the market is very dull. Some of the mills have not begun to saw yet, and those that have started are piling their lumber. The Buckley & Douglas Lumber Co. have been cutting all winter and have the largest stock of lumber ever seen here, but the market is so slack that they do not take advantage of the early opening of the season to fit out their propeller, the Edw. Buckley. Their capacious yard is full and they have piled a great deal of lumber on the M. & N. E. R. R. yard on the lake front.

The new Smith street swing bridge is nearing completion. The south draw will prove the most serviceable, as it is wider than the north draw, and is on the big side of the curve. It has been built by the Milwaukee Bridge Co. H. L. H.

PORT HURON, MICH.

Special Correspondence to The Marine Record.

All the fleet lying at Sarnia are fitting out for the season.

The Northwestern steamers United Empire and Monarch are fitting out and will start as soon as the ice will permit.

McElroy's flyer building here is all in frame and Mr. McElroy says she will be the fastest passenger boat on the lakes.

Lynn's range lights at Point Edwards will be lighted this season. His lights at Port Huron will also be lighted by lens lamps.

There is a large quantity of ice in the vicinity of Godrich, but the mild weather the last week has honeycombed it and it is very rotten.

Capt. Lon Cox will leave for Grand Haven this week to look after the tug Thompson. He will have her stationed in the Straits to assist the spring fleet through the ice.

The Thompson tug and wrecking tugs Merrick and Brockway will leave here for the "Soo" as soon as the ice will permit, with the lighter Clinton. Both tugs will be stationed at the "Soo" for the season.

TORONTO, ONT.

Special Correspondence to The Marine Record.

Engineer Wilson, who was in the steamer Cibola, last year, is going into the Corsican this season.

Engineer White, of the steamer Carmona, is laid up with a severe attack of rheumatism.

The New Island Ferry Co. have purchased two ferry boats in Montreal, to be delivered here shortly.

Mr. Harry Brown has been appointed chief engineer of the Toronto Ferry Co.'s fleet. Last year he was engineer in the steamer Mayflower.

Capt. Murray, of the steamer Columbian, was in port Saturday, seeing his company on vessel business. He returned to St. Catharines on the steamer Lakeside.

Mr. Grant, of the firm of Grant & Widdifield, has returned from the Welland Canal, at which place he chartered a tug to work in connection with the firm's contract at the Don.

Capt. Dacey of the barge Cavalier was in port Friday. He had come from St. Catharines, where he is overseeing the fitting out of his vessel, owned by Carter Bros. of this port.

Two ferry boats are running to Halan's Point—the John Hanlan and the Clark Brothers. The John Hanlan is being run by the new ferry company. During the winter she was thoroughly overhauled at Oakville.

Mr. John Doran, who was chief engineer in the steamer Primrose last summer, is going into the Cambria this year, a vessel which trades on the Georgian Bay. Engineer Sam. Mills will take charge of the machinery on board the steamer Primrose this year.

Mr. Sylvester Perry, son of Mr. Sam. Perry, so well known in connection with Muir's dry dock at Port Dalhousie and the dry dock at the Don here, has been engaged by Messrs. Manning & MacDonald, at Coteau Lake, to build a new dredge and two new tugs to be used on the firm's work in the St. Lawrence river.

Fifty more logs of timber have come ashore in the vicinity of Frenchman's Bay, and the steamer Lakeside passed several on her way across from St. Catharines here. These all belong to the raft which broke

away, and came over the Niagara Falls. The steamer Ada Alice will start out in a few days to pick up these logs and have them re-rafted.

Regular daily trips between this port and St. Catharines have been begun by the steamer Lakeside. The officers are: Captain, N. J. Wigle; chief mate, Michael Brennan; purser, H. G. Luke; steward, Addison Young; stewardess, Mrs. Addison Young; chief engineer, William Watt; second engineer, George O. Caistor. Purser Alex. Cowan, who was in the Lakeside last year, is going into the Garden City this season.

ATLANTIC COAST NOTES.

Special Correspondence to The Marine Record.

Jacksonville, Fla.—The Merrill & Stevens Engineering Co., have about completed building a yacht, 60 feet long.

Newport News, Va.—Newport News Ship Building Co., are laying the keels for three gun boats for the Navy.

Baltimore, Md.—Woodall & Co., will contract in the near future for a steamboat for the Chesapeake Bay service.

Wilmington, Del.—Jackson & Sharp are building two tugs, one small steamer and several barges.

The Pusey & Jones Co., Willimgton Del., are building a small steamer for coast service. The Harlan & Hollinworth Co., are altering the steam collier Centipede, into a barge.

Camden, N. J.—John Dialogue has contracted for a tug 100 feet long for the Savannah Tow Boat Co. Also closed a contract for a sea going tug for the N. J. Central R. R. Co.

Philadelphia, Pa.—Neafie & Levy Ship Building Co., are building a steamer for Havanna owners. The Wm. Cramp & Sons Ship and Engine Building Co., are building a steam collier for the Philadelphia & Reading R. R. Co., besides their large naval contracts. Chas. Hillman & Son have just closed a contract for a small steamer for coast service.

Boston, Mass.—The Atlantic Works have now under construction a handsome steel steam yacht. Ambrose & Martin are building a pilot boat for the Boston Pilots, to be a sister craft to the pilot boat Varuna. Wm. McKie is completing a steamer for the Boston & Gloucester Steam Boat Co. James McKie is building a schooner of 400 tons register.

New York.—The Chapman Derrick & Wrecking Co., are drawing up specifications and asking for bids on a large steam floating derrick.

Thompson, Me.—Washburn Bros., are building a four masted schooner.

Camden, Me.—H. M. Bean is building a 1000 ton schooner for Amos Birdsall of Tom's River, N. J., and has also contracted for a sister craft for other parties.

The Merritt Wrecking Co., are about to sell their steam wrecker Rescue, to South American parties, she will be stationed at Trindad. They are now receiving bids for a new steel boat to replace her. It is rumored that the Clyde Line will run steamers to New Orleans. Palmer, of Noank, Conn., has received the contract for 10 coal barges for the P. & R. R. R. The Bath Iron Works will put in the machinery.

The Bath Iron Works will soon move to New London, they will have to abandon $125,000 worth of property at Bath, in making this change. They intend to have the most complete ship building plant on the coast. Their plant will be situated on the west side of the Thomas river just north of the railway bridge.

The triple screw pleasure boat which is building at Fred Verdons shop in Hoboken, is nearing completion. This is the first of triple screw type to be built for that service, and steam boat people are anxiously waiting the result.

The Chapman Wrecking Co., will add 11 feet to the steam wrecker I. F. Chapman.

These are busy days at the Tebo Yacht Basin, 23rd street, South Brooklyn, there are at present over $3,000,000 worth of pleasure craft at these docks and all are fitting out for the coming season. Dialogue of Camden has just closed a contract for a large steel tow boat for Savannah.

SALARIES OF STEAMBOAT INSPECTORS.

The following bill relative to the salaries of inspectors of steamboats has passed the house and senate this week:

The Supervising Inspector-General shall report to the Secretary of the Treasury, at the end of each fiscal year, the number of steamers inspected in each local district in that year, which number shall be the basis upon which shall be determined the salaries to be paid to local inspectors for the following fiscal year, in the ratio described in the preceding paragraphs of this section. And, in addition, the Secretary of the Treasury may appoint, upon the nomination of the supervising inspector of the district, in collection districts where there are 225 steamers and upward to be inspected annually, assistant inspectors, at a salary, for the district of New York, of $2,000 a year each; and for all other districts at a salary not exceeding $1,600 a year each: Provided, however, that the Secretary of the Treasury may, in his discretion, increase the salaries of assistant inspectors to not exceed $1,800 per annum in distrists where the number of steamers inspected shall exceed 325 per annum, and he may appoint a clerk to any such board at a compensation not exceeding $1,200 a year to each person so appointed. Every inspector provided for in this or the preceding sections of this title shall be paid for his actual and reasonable traveling expenses at the rate of 8 cents per mile, incurred in the performance of his duty, together with his actual and reasonable expenses for transportation of instruments, which shall be certified and sworn to under such instructions as shall be given by the Secretary of the Treasury.

DECIDED AGAINST THE MERCUR.

Judge Swan, of Detroit, has decided that the steamer Fred Mercur was at fault when she collided with the schooner John B. Merrill two seasons ago, and has awarded damages against the steamer. The Merrill was bound up with a cargo of coal in tow of the tug Swain, and collided with the Mercur near the mouth of the Detroit river, opposite Amherstburg. The Merrill was damaged so badly that she foundered, and her owners brought suit for $16,5000.

EXPIRATION OF CERTIFICATES.

Steamers whose Certificates of Inspection run out up to April 7 in the Chicago district are as follows:

E. P. Ferry,	April 3	S. K. Martin,	April 6
A Carpenter,	" 3	M. C. Neff,	" 6
A. A. Van Schaick,	" 3	Iosca,	" 6
Black Ball No. 2,	" 3	Welcome,	" 6
Albert Soper,	" 3	Ira O. Smith,	" 6
John Spry,	" 4	Milwaukee,	" 7
Boscobel,	" 4	Hudson,	" 7
T. T. Morford,	" 5	Buffalo,	" 7
Robert Holland,	" 5	Boston,	" 7
Barney,	" 5	Commodore,	" 7

FORMATION OF WAVES.

The Hydrographic Department in the February issue of the *North Atlantic Pilot Chart*, published an excellent treastis on "The Formation and Growth of Waves at Sea, and the best Substances to Use for Lessening their Destructive Effects," by G. G. W. Littlehales, assistant U. S. Hydrographic Office from which the following excerpt is taken:

"Large sea-waves seem to be the result of a building-up process caused by the union of the smaller with the larger waves. If, by any reason, there be one wave larger than those around it, its size will be continually increased at the expense of the smaller ones. For these smaller waves, in passing over the crest of the larger, offered increased obstruction to the wind and became dart-shaped at the top. The force of the wind easily breaks these sharp-edged waves into fragmeuts which go to increase the size of the larger waves, leaving the small ones yet smaller. So they continue to enlarge their dimensions and the depth to which they cause disturbance of the water, until, with their foaming crests and irregular movements, they produce the confusion of a stormy sea.

"Objects floating on the surface of such a sea are not carried along by the waves, except when they are struck by the loose masses of water from the breaking crests. A ship, one moment in the hollow of a large wave, is the next riding on its crest, and wave after wave rushes under her without driving her out of her course. In tidal estuaries, with the waves rolling in from the sea against the current of ebb tide, all mariners have often noticed floating objects continuing to pass out to sea against the inward passage of the waves.

"So that these waves at sea, rushing along with a speed of many miles per hour, do not carry the water along with them. In fact the wave is the advancement of a mere form, and the motion of the particles of water is very different from the wave motion. Imagine a case in which the water has been suddenly heaped up by a gust of wind. The weight of the particles of water in the heap causes them to push forward the particles in front of them to a place farther on and there they come to rest, but the process of displacement continues from one to another successive mass of water until the displacing force is spent. As the particles of water crowd upon one another in going out of their old places into the new, the crowd forms a temporary heap on the surface of the water, and, as each successive mass is displacing the mass in front of it, there is always one such heap moving along at the place where the displacement is going on, and made up always of another and another set of traveling particles. This moving crowd constitutes a true wave. The velocity of the wave is the velocity with which the heap is seen to move. Its form is the form of the heap. Its length is the distance from crest to crest, and its height is the distance from the level of the crest to the level of the hollow.

"Consider a particle in a mass of water about to be traversed by a wave form. The weight of water in the heap behind it tends to press it forward where there is a solid wall of water to resist the movement. Under the action of these two opposite forces the particle is driven upward and forward until the particles which have displaced it have made room for themselves, then it sinks, and finally comes to rest a little in advance of the place from which it started. The motion of migration of each individual particle is thus in a closed orbit, and in a vertical plane parallel to the direction in which the wave-form is moving. The path followed by each particle is elliptical or oval-shaped, and, in water of nearly uniform depth, the longer axis of the oval is horizontal, and the shorter vertical. When at the top of its path, the particle moves forward in the direction in which the wave-form is moveing; when at the bottom, backwards.

"The particles at the surface describe the largest orbits. The extent of their motion, both horizontally and vertically, became less in proportion to the depth below the surface. A particle at the bottom of water of moderate depth moves backward and forward in a horizontal straight line. On the ocean, where the water is deep as compared with the length of a wave, the paths of the particles are nearly circular, and the motion stops at great depth.

TOLEDO, O., now wants a new fire-boat.

PERSONAL.

Mr. John C. Fitzpatrick was welcomed in Cleveland vessel-owning circles this week, prior to his leaving for Duluth to establish a brokerage business.

Capt. J. J. H. Brown, of Buffalo, visited Cleveland this week, and besides attending the semi-monthly finance committee meeting of the Lake Carriers' Association, he spent some time with individual vessel owners, among whom Capt. Brown is quite a favorite.

Capt. John Hall, manager of the American Steel Barge Co., at Cleveland, has been under the weather for several weeks with rheumatism. We are pleased to learn that with the approach of fine weather "the enemy" is letting go its hold and the captain expects to be around again in a few days.

Egbert P. Watson, editor of *The Engineer*, New York, says that "after thirteen years close attention to business, he has determined to circulate himself prominently and personally among the friends who have so long and so ably aided him in his efforts to establish a journal in their interest, and the coming summer will—D. V.—find him on the Great Lakes, where many friends, new and old, are to be found. The wonderful development of steam marine in that section will have special attention."

FLOTSAM, JETSAM AND LAGAN.

The schooner M. R. Warner, which went ashore near Sandy Island, Lake Superior, last fall, went to pieces during the gale of March 11.

The work of surveying the Duluth & Iron Range's new railroad line out of Two Harbors is still being prosecuted. The company will not, however, do anything toward building it until the latter part of the season, as better progress can be made when the ground is dry and the line cannot be used before next season anyway.

Although the coal and ore shippers are making every effort to get the business of fueling steamers this season as usual a large number of owners have made arrangements with other parties for fuel at reduced prices. The fueling question has been canvassed year after year but the low freights now offered have driven owners to seek every opportunity to economize in the handling of their boats.

The coal heavers of Superior, Wis., have organized a union in order to meet or fight the cut in their wages which they expect the coal companies will make when navigation opens. The companies have not yet made known their intentions, but it is regarded as inevitable that the pay for coal heavers will be reduced this spring from 50 cents to 40 cents per hour. The coal heavers number about 200.

Coroner Charles Blood, of Dunkirk, says he does not believe that any more bodies of the ill-fated crew that went down with the steamer Dean Richmond last fall will be recovered until the hull breaks up or is explored by divers. He has received advices from the insurance companies that as soon as the weather permits an effort will be made to locate and probably raise the sunken vessel.

An inquirer in New Orleans writes to ask the *Marine Journal*, of New York, if anything is known of the whereabouts of James B. Nicholson, who has been variously reported as drowned off a schooner that capsized at Manistee, Mich., and also as drowned at Pensacola. His wife and family have no authoritative information as to whether he was drowned at all or not. Can any of our readers supply any facts in the case?

The people of Manitowoc are making an effort to have the government build a breakwater to protect that harbor from northeast blows. It is said by vesselmen to be almost impossible for a vessel to lie in that port during a big blow, owing to the heavy sea which rushes into the harbor. A good harbor at Manitowoc is needed and we hope the efforts of its people to that end will be successful.

Lieutenant Lyman of the Kearsarge is reported to have given an explanation of the loss of his vessel in the following terms: "Faulty charts, uncertain currents and the fact that we did not sight the reef before dark." The sweet simplicity of the Lieutenant's nature is too gentle a thing to be buffeted by wind and wave. As an attache at Washington he would be an honor to his country. To send him groping among reefs in the dark sea of Carib is like throwing pearls to swine. And the cruel reef bobbed up and hit him. Too bad, too bad! —*The Coast Seamen's Journal.*

The *Reporter* very pertinently calls attention to the fact that although Marine City has four shipyards, and has built ships for the past forty years, it lacks a very important feature, and one which is quite necessary to a port which does so much building and repairing, and in which so many vessels are owned, yet there is no dry-dock there. It further stated that this is an opening for capitalists who are seeking a profitable investment, as the establishment of a first-class dry-dock, together with the advantages it already possesses, would make of Marine City a port of repairs for wooden vessels, which would not be excelled by any on the lakes.

MARITIME LAW.

MILLER vs. O'BRIEN,

U. S. District Court, Southern District of New York.

1. BOTTOMRY LIEN ATTACHES TO SALVAGE—AND TO FUND RECOVERED FOR TORTIOUS COLLISION—CONTRIBUTION BY SHIP OWNER TO CARGO OWNER.—It is a rule of the general maritime law that, if there be any salvage or proceeds of any of the effects covered by a bottomry bond, the bondholders lien attaches thereto, although the ship be lost.

2. Unlike insurance moneys, damages recovered from the offending vessel by the owner of a ship lost in collision, can a substitute for the ship, and any such recovery represents the interest of the owner in his vessel. Hence, a transfer, under a bottomry bond, of all the owner's interest in the vessel includes, by necessary implication, the fund recoverable for her tortious destruction.

3. A ship was totally lost in collision, but a portion of her cargo was saved, and the cargo owner, under bottomry and respondentia bond given on ship and cargo, were compelled to pay the entire amount of the bond. The ship owner having afterwards sued for the loss of his ship and having recovered damages, *held*, that he was liable to contribute to the cargo owner for his share of the bottomry.

BROWN, J.

The above libel was filed against the respondent *in personam* as owner of the American ship Andrew Johnson, to recover £1617-4-3, the defendant's alleged pro rata share of certain moneys which the libellants were compelled to pay at Hamburg, Germany, in order to redeem their cargo from a bottomry bond executed by the master at Callso, Peru, on September 15, 1884.

Most of the facts are stated in the decision upon the argument of exceptions to the libel; 35 Fed. Rep., 779. It was there held that the bond remained a valid bottomry lien upon the 1200 tons of nitrates which had been trans-shipped from the Andrew Johnson to the Mary J. Leslie, and which reached safely the port of Hamburg, although the Andrew Johnson, to whose cargo all the nitrates had formerly belonged, was lost at sea by collision. The exceptions to the libel were, however, on the ground that under the acts limiting the liability of ship-owners, the defendant was not further responsible after the total loss of his vessel,—her total loss being alleged in the libel. The loss of the Andrew Johnson resulted, however, from collision with the ship Thirlmere, through the fault of the latter vessel; and the respondent subsequently recovered from the owners of the Thirlmere in England damages for the loss of the Andrew Johnson to the amount of £5179 13 6, and £858-6-11 for the loss of freight; the value of the ship having been fixed at £10,000. These facts were alleged in the amended libel and established by the evidence.

On the arrival of the Leslie at Hambug, it was agreed the representatives of the bottomry claimant and the owners of the cargo that in consideration of the delivery and release of the cargo from the bottomry the owners of the cargo should pay "whatever proportion of the said bottomry and respondentia bond may be found to be legally due from the said cargo; the question to be submitted" to certain legal counsel as arbitrators; and the cargo was thereupon delivered. Its value was upwards of three times the whole amount of the bond; and the arbitrators having subsequently decided that the cargo was legally subjected to the lien of the bond, the whole amount of the bond was paid by the libellants, the owners of the cargo. The bond was given for port of refuge expenses and advances at Callao. Upon an average adjustment afterwards made in London, the amount claimed in the libel was computed to be the pro rata amount of the advances chargeable upon the ship and freight; and the above libel was for recovery thereof against the owners as moneys for their use.

(1). On careful consideration of the further arguments made in behalf of the respondents, I am not persuaded of any error in the former decision, as to the proper construction of the bottomry bond, or in the conclusion that the cargo that arrived at Hamburg on board of the Leslie was bound by the bond, notwithstanding the loss of the Andrew Jonhson. Even if the Andrew Johnson had been an "utter loss," within the language of the bond, that portion of her cargo which had been transhipped on board the Leslie, and which arrived safely, was not lost; and that portion was specifically, and by names hypothecated in the bottomry bond. It seems to me inconceivable that the parties should thus explicitly have embraced this part of the cargo in the bond without intending it to answer for the bottomy loan on safe arrival at Hamburg, even though the Andrew Johnson might perish. The ambiguous phraseology of the bond in using the term "the said vessel" should be so construed as to effectuate the obvious intention of the whole instrument, by making the words "the said vessel" include *both vessels*, i. e., by interpreting the singular for the plural, if necessary, *ut res majus valest quam pereat.*

Besides that, however, it is the general maritime rule, as I understand, that if there be any salvage, or any proceeds of any of the effects covered by bottomry, the bond-holder's lien attached thereto, though the ship be lost. McLaughlin on Shipping, 2d Ed., p. 61; Force vs. Providence, 35 Fed. Rep. 767,771, and authorities there cited. In full instruments of bottomry, like the present, an express clause to that effect is often, perhaps usually inserted. The Code of Spain Art. 835, like those of France, Italy and the Netherlands, provides that "in case of ship-wreck, the amount chargable for the repayment of the loan on bottomry is reduced to the product of what is saved, less the expense of salvage." The South American Codes are mainly a reproduction of those of Spain; and that of Peru probably has a similar provision. There is no evidence before me on that point, nor have I that Code at hand. But so general is this provision, and so wholly in accord with the nature and object of bottomry, that I cannot help considering it, under the general maritime law, to be virtually a part of the bond by implication, and not necessary to be expressly reserved in the bond. Such is the rule laid down by Emerigon; Cont. a la Grosse, Ch. 11 Sec. 22; and this seems to be approved as the general maritime rule in Insurance Co., vs. Gossler, 96 U. S., 652, 653, 655, in which the Court, per Clifford, Jus., states the general law as follows:

"Where the bond covers the cargo as well as the vessel, the lender *unless the condition is otherwise*, is entitled to be paid even if the ship lose if enough of the cargo arrives in safety to pay the bottomry loan; the rule being that a maritime lien of the lender attached to the entire property covered by the bond, or all that part of it which arrives at the port of destination in safety."

See Appelton vs. Crowningshield, 3 Mass., 464; 8 do. 340.

(2). It now appears that the respondent has recovered upwards of $30,000 for the loss of the Andrew Johnson, through the negligence of the Thirlmere. These proceeds in the respondent's hands stand as the produce and representative of the ship; so that the Andrew Johnson, even if the words "the said vessel" be held to refer to her only, has not become an "utter loss" within the condition of the bond, or within the presumed intention of the parties. The limited liability acts, for the same reason, are not available to the owner as a defence, because he must surrender those proceeds as a part of his "interest in the vessel" in order to become entitled to the limitation of liability. Such proceeds have no resemblance to insurance moneys recovered after such a loss; for insurance moneys are held not to stand as a substitute for the ship, because they arise out of an independent, personal contract for indemnity; a contract wholly collaterial to the ship, and not constituting any interest in the ship City of Norwich, 118 U. S., 468, 494. The damages recovered for the negligent destruction of the ship are precisely opposite. The right of property and the right to damages are identical; the latter is founded directly and exclusively upon the former, as is its necessary legal attendant.

That such damages are to be treated as a substitute for the ship, is rule after applied in case of mutual fault, upon a total loss of one of the vessels and her cargo. The vessel that survives is not required to pay the whole loss of the other's cargo in addition to one half the value of the other vessel loss; but the sum recoverable by the latter is treated as a fund representing the lost ship, and as such chargeable with half the loss on her own cargo. This is enforced notwithstanding the fact that the statute makes "the interest of the owner *in the ship and pending freight* at the *close of the voyage*, the limit of his liability. For his interest in the ship still remains in the form of a demand against the other vessel for half damages, for which he must account. It is the same with a bottomry bond, for this conveys, in pledge, all the owner's interest in his ship, and under the bond and under the statute alike the transfer of his interest in the vessel includes, by necessary implication, the fund recoverable, as the representative of the ship, for her tortious destruction.

I find, therefore, that the bond was a legal lien upon that part of the cargo which arrived in Hamburg, and which was worth more than the amount of the bond. The libellants, having necessarily paid the bottomry load in full, in order to obtain possession of the cargo, are entitled to be reimbursed, so much, as upon a proper adjustment, was chargeable to the respondent as owner of the ship, and freight. The rules of general average being somewhat different in this country from those of England, if the parties dissatisfied with the adjustment made in London, a reference may be taken to ascertain the proper amount according to our law, there being no evidence that any different law is applicable.

Decree accordingly, with costs.

New York, February 5, 1894.—*New York Maritine Register* March 21st.

PREACHING IN A FLOATING CHAPEL.

Rev. A. E. Keables, of Ashland, Neb., is now in St. Louis, Mo., with a view to establishing an evangelical work on the Mississippi river. He proposes to build a boat with all the accessories of a church, providing seats for 600 people. It is his intention to conduct services along the river front in this floating chapel. The plan is to make the enterprise an inter-denominational one.

TO DISCOVER EXPLORERS.

Capt. W. S. Schley, U. S. N., calls attention to the fact that there is at this moment in the Artic regions, presumably about Ellesmere Land, a lost exploring expedition of daring Swedes under the leadership of young Bjorliong, who left Stockholm early in the year 1892 for St. Johns, N. F., where he purchased a small sloop or schooner, named the Ripple, and, with five companions, sailed about June of that year to explore Ellesmere Land. The expedition under Mr. Stein is intended for the relief of the Bjorling party. To enable him to add three or four more persons to his expedition, in order to widen its field of search and to cover the most ground possible during the short summer avilable for such work in the Artic, he lacks about $1,000. Subscriptions to this fund are solicited by Capt, Schley.

DULUTH VESSEL AGENTS.

H. B. Earhart and John C. Fitzpatrick have formed a partnership as vessel and marine insurance agents at Duluth.

The firm of La Salle & Wolvin, vessel brokers, has been dissolved, Mr. Wolvin retiring. He will continue as agent of the Western Transit Co.

MAGNOLIA METAL ALWAYS AHEAD.

TESTS MADE BY HAWTHORNE, LESLIE & CO., NEW CASTLE-ON-TYNE.

Recently a series of tests of the working of several anti-friction bearing metals were made at the works of one of the leading firms of marine engineers in the North of England. Amongst the metals tested were Parsons' White Brass, Stone's Navy White Bronze Tandem Metal, the Government mixture, and Magnolia Metal.

Stone's Navy White Bronze and Magnolia much surpassed the other metals, and a final test of the two was made, which showed the great superiority of the latter. The machines were identical in each case, and consisted of a 3-inch shaft, running in bushes 4½ inches long, centers 16¼ inches, and the weight was applied by a lever and tested spring. The weight was 3 cwt., and the leverage 9 to 1; area of bearing, 3 inches by 2 3-16 equals 6.56 in each case, and the pressure per square inch, 495.12 pound.

The bearings were each lubricated with 47 drops of oil per minute for the first ten minutes, and then the supply of oil was entirely cut off. The White Bronze bearing fused at a temperature of 293 degrees Fahr., in 3 hours and 10 minutes from starting; whilst, as will be seen by the details below, the Magnolia bearings were in perfect condition 4 hours and 10 minutes after starting, the temperature being 129 degrees Fahr., and the bearing had actually cooled down from a maximum of 145 degrees Fahrenheit.

STONE'S NAVY WHITE BRONZE METAL.				MAGNOLIA METAL.			
Time.	Temperature, Fahr.	Time.	Temperature, Fahr.	Time.	Temperature, Fahr.	Time.	Temperature. F.
11.50	64.4	2.0	163 4	3.50	71.6	6.0	140.
11.55	66.	2.5	166.1	3.55	74.3	6.5	145.4
12.0	71.6	2.10	185.9	4.0	77.0	6.10	138.2
12.5	75.2	2.15	203.	4.5	80.6	6 15	138.2
12.10	78.8	2.20	214.7	4.10	86.0	6.20	138.2
12.15	84 2	2.25	221.	4.15	88.7	6.25	138.2
12.20	89.6	2.30	222.8	4.20	89.6	6.30	138.2
12.25	92.3	2.35	239.9	4.25	91.4	6.35	137.3
12.30	95.0	2.40	244.4	4.30	93.2	6.40	136.4
12.35	98.6	2.45	249.8	4.35	93.2	6.45	137.7
12.40	100.4	2.50	264.2	4.40	93.2	6 50	138.2
12.45	102.2	2.55	276.8	4.45	91.4	6.55	137.3
12.50	104.	3.0	293.0	4.50	91.4	7.0	140.0
12.55	105.8	....	fused.	4.55	91.4	7.5	136.4
1.0	107.6	....	.....	5.0	91.4	7.10	136.4
1.5	107.6	....	.....	5.5	93.2	7.15	139.1
1.10	109.	....	.....	5.10	93.2	7.20	140.0
1.15	110.	....	.....	5.15	93.2	7.25	138.2
1.20	116.6	....	.....	5.20	95.	7.30	138.2
1.25	132.8	....	.....	5.25	102.2	7.35	135.5
1.30	168.8	....	.....	5.30	104.	7.40	132.8
1.35	175.1	....	.....	5.35	111.2	7.45	129.2
1.40	167.	....	.....	5.40	130.1	7.50	127.4
1.45	164.3	....	.....	5.45	125.6	7.55	129.2
1.50	163.4	....	.....	5 50	123.8	8.0	129.2
1.55	165.2	...	.....	5.55	123.8		
Total revolutions run, 34,826. Mean speed, 183.3. Remarks.—When metal fused the weight on spring was found to have decreased to 1 cwt.				Total revolutions run, 45,602. Mean speed, 182.4. Remarks.--Magnolia bearing in perfect condition at finish, weight same as at commencement.			

NOTE.—In explanation of the decrease in temperature of Magnolia Metal during the last portion of the run, it should be stated that this bearing was cast on a mandrel and put in place rough, so that it had comparatively little bearing surface at first, and when examined at the end of the test was found not to have a full bearing even then; but, of course, as the total pressure remained the same throughout the test, viz., 3,024 pounds, as the bearing surface increased, the pressure per square inch was correspondingly reduced; hence the decrease in temperature.

We hope shortly to be able to give the full particulars of the whole of the tests, which will no doubt be interesting to many of our readers.—*From the Practical Engineer.*

CONDEMNS FITHIAN'S FREE SHIP BILL.

Charles H. Cramp emphatically condemns the Fithian Free Ship Bill, now pending before the Commerce Committee of the house. He declares that shipbuilding would cease in this country if that bill should be enacted. The bill provides that vessels purchased abroad shall be excluded from the coastwise trade, but, according to Mr. Cramp, the demands of the coastwise trade would not sustain any one of a half dozen American shipyards. "If our own yard was empty," said Mr. Cramp, "if we had no naval or transatlantic construction on hand, I would sign contracts to-night to duplicate every coastwise steamship that has been built since 1889, and deliver the whole lot in twelve months. The state of the industry ten years ago, when the rebuilding of the navy was begun, fairly represents the capacity of the coastwise trade to sustain shipbuilding.

COURT-MARTIAL OF A NAVAL OFFICER.

A court-martial has been ordered for the trial of Comr. Oscar F. Heyerman on charges involving negligence and inefficiency in connection with the Kearsarge disaster. The court consists of the following officers: Commor. C. C. Carpenter, president of the court; Capts. Montgomery Sicard, J. O'Cane, Albert Kautz, B. F. Day and John J. Read, Comdrs. Frank Wildes, Nicoll Ludlow and R. P. Leary, and Lt.-Comdr. J. D. J. Kelley, J. A.

There are two formal charges and specifications, as follows: Charge 1. Through negligence, suffering a vessel of the Navy to be run upon a reef and stranded. The specification alleges that the accused did maintain a course of W. S.W. ¾ W. which course lay close to a dangerous reef and cay, surrounded by strong currents well known to exist, and did neglect and fail to exercise proper care and attention in navigating said vessel in that he neglected and failed to lay a course which would surely carry the vessel clear of said reef and cay, or to change course in due season to avert disaster.

Charge 2. Culpable inefficiency in the performance of duty. The specification alleges that Comdr. Heyerman well knowing under the conditions of the weather then existing, the difficulty of sighting Roncador bank, Carribbean Sea, from a safe distance after darkness fell, and that the speed at which said vessel was then running would place her in the vicinity of said bank at or about sunset, did fail to increase the speed of said vessel, as it was his duty to do, so that said bank might be sighted in broad daylight, and was therein and thereby culpably inefficient in the performance of his duty.

In that the said Oscar F. Heyerman, well knowing that at about sunset of that day the steamer Kearsarge had nearly run her estimated distance from the 4 o'clock post meridian position, obtained and plotted by the navigator of said vessel, to the position of Roncador bank, Caribbean sea, and well knowing, under the conditions of the weather then existing, the difficulty of sighting the bank from a safe distance after darkness fell, did fail to lay a safe course to the northward, before continuing on a westerly course.

It is understood that the Court of Inquiry brought in a finding which was unfavorable to Lt. Lyman as well as Comdr. Heyerman. The question of a court-martial for the lieutenant will not be finally settled until it is seen what disposition is made of Comdr. Heyerman's case.

SUBMARINE TELEGRAPHING WITHOUT WIRES.

Progress is being made toward the next great electrical triumph—telegraphing and telephoning without wires. The latest results of English experiments were described in a lecture before the Society of Arts recently. A copper wire a half mile long was hung on poles on the coast near Cardiff, the earth completing the circuit. Six hundred yards away another wire, 600 yards long, and parallel with the original line, was buried in the sand at the low water mark. More than three miles off, on Flat Holme Island, another wire, also 600 yards and parallel, was laid down. An alternating current, controlled by a Morse key, was sent through the first wire. The signals were reproduced in the wire on the island and read by a pair of telephones. Messages were easily sent. Similar experiments at five and one-half miles were similarly successful. The human voice was easily transmitted by the same means one and a quarter miles. Critics contend that the results were due to conduction through the earth. The experimenter maintains that the results were due to electro-magnetic induction of the rapidly alternating current in the primary circuit, throwing the surrounding ether into oscillations, and the energy was radiated in electric waves. These waves, he says, spread out like waves of light, and if they fall on conductors properly placed and sympathetically prepared are converted into an alternate current in the secondary circuit. Enthusiasts on the subject argue that we are fast getting on the track of the secret which, when secured, will enable us to communicate with other planets.

RE-LAY THE CABLE.

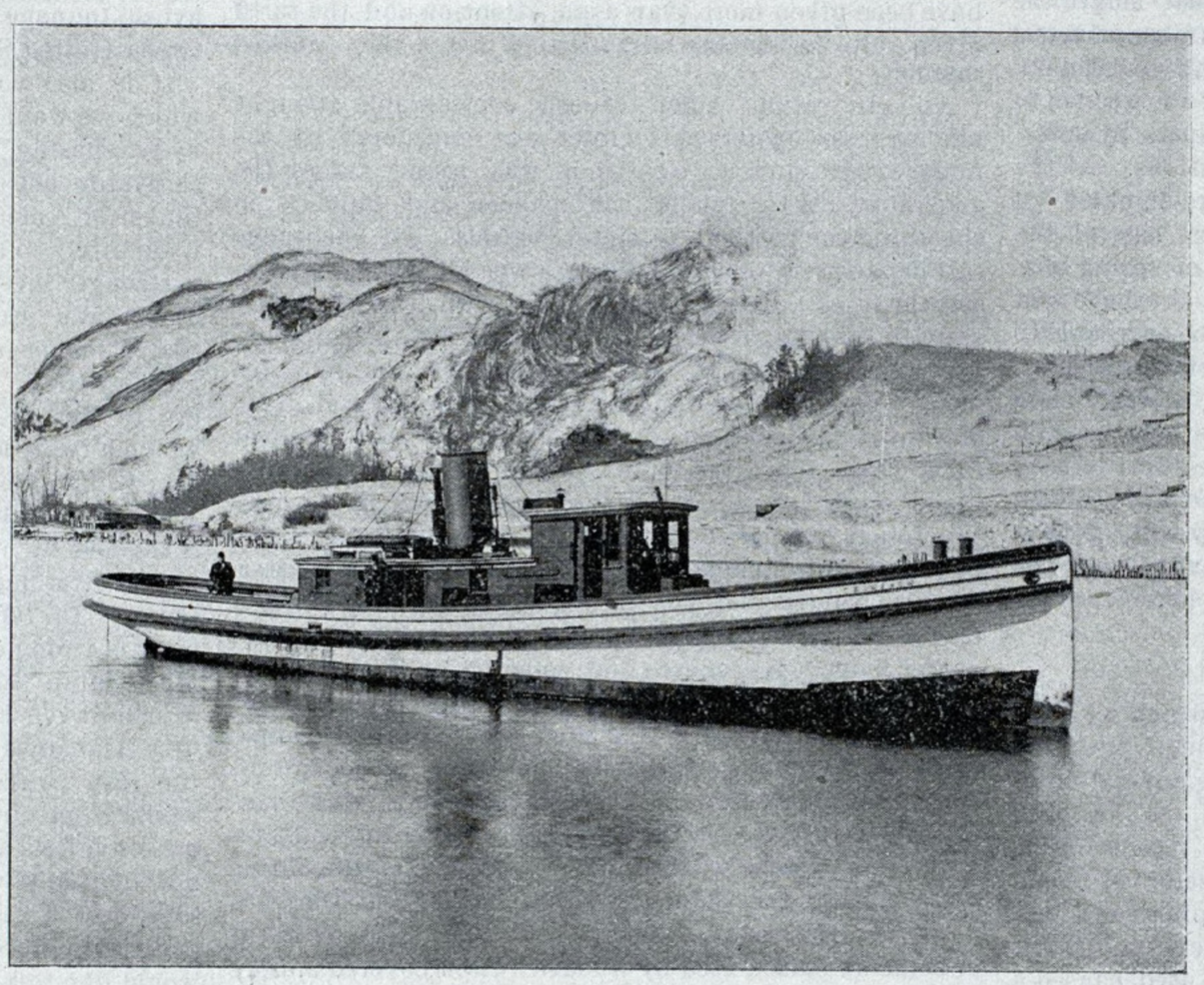
The submarine cable from the Canadian mainland to Point Pelee island, Lake Erie, is frequently injured by anchors of vessels. A petition, addressed to the Canadian authorities, asking that it be removed from the west end of the island to the east end, is being circulated and signed by vessel men generally. Vessels are not accustomed to anchor at the east end of the island, and the cable will be comparatively safe if laid there.

A LAKE-BUILT TUG.

ILLUSTRATED.

The accompany cut shows the present type of lake-built tugs for river and harbor service. The Charles D. Thompson was built by the Jenks Ship Building Co., of Port Huron, under the supervision of James Mason, the well known tug builder of Buffalo, N. Y. Her general dimensions are 92 feet in length, 19½ feet beam, 10½ feet depth of hold. Engines, cylinders 22½ by 26; boiler, 9 by 14, allowed 145 pounds of steam.

When the Thompson was ready for service towards the close of navigation last fall she was chartered to assist in the winter navigation of the steamers Wisconsin and Roanoke on Lake Michigan, where she has rendered excellent service. The Thompson also gave some valuable assistance to the ice-bound steamers Chicora and Reid off Benton Harbor, at which time the masters of both steamers pronounced the Thompson as being the finest and best harbor tug on the lakes.



LAKE TUG CHAS. D. THOMPSON.

On the opening of navigation the Thompson will be stationed at the Straits to assist the spring fleet if required, after which time her owners, Thompson, Lynn & Boynton, of Port Huron, will handle her out of that port where she will be equipped with a full wrecking outfit. Thompson & Lynn are also building another new tug at Port Huron to be completed by May. Her dimensions are 95 feet long, 20 feet beam and 11 feet depth of hold. Engine, cylinders 17 by 30 by 36; boiler 9½ by 14½, tested for 140 pounds steam. With the Thompson as a sister boat, Port Huron will be well represented in having two powerful new tugs.

GRUMMOND'S TUG LINE.

The well known tug Champion of the Grummond Line will be stationed at Mackinaw City with a full wrecking outfit aboard, on April 1. The tug Swain is now at Detroit all ready for business, and can be dispatched to any point at short notice.

WANTED TO KNOW HIS WHEREABOUTS.

The Chicago Ship Building Co. desire to know the whereabouts of Dell Tillman, last season steward of the whaleback passenger steamer Christopher Columbus. There is some property in the hands of the company belonging to Tillman and they want to turn it over to him. Their address is given in our advertising columns.

THE BUFFALO LINE BOATS.

The Western Transit Co.'s freight steamers Buffalo, Milwaukee, and Harlem will go into commission about the middle of next month. The Union Steamboat Co'.s steamers Chemung, New York, Oswego, Tioga, Jewett, and Rochester will go into commission April 16. The Lehigh Valley Transit Co. will start its freighters April 15. The Anchor Line will start its boats about April 16, and will put into commission the Lycoming, Delaware, Schuylkill, and Conemaugh.

NAVAL NOTES.

Secretary Herbert has ordered all the American war ships away from Rio, as the yellow fever there has reached the epidemic stage, and that there is no necessity for keeping war vessels there.

The question of a good evaporator for the naval service is one which has long puzzled the Bureau of Steam Engineering. Pretty nearly all of those thus far tried on the new ships have not given satisfaction, the claims of the inventors not having been borne out in practice.

The number of ships of the navy available for active service will be augmented in the next three weeks by six more vessels, and probably by eight. Lack of men to man them, however, is a serious question which the department is now contending with, and may prevent some of them from being assigned to a station for a number of months.

The 10,000 ton battleship Massachusetts, the second of the formidable fighting ships being constructed at Cramp's shipyard, has been towed to League Island and put in the dry-dock, where she will receive her propellers and have the bottom of her hull scraped and painted preparatory to her builders' trial trip. After being fitted with her propellers she will be given her dock trial. The Indiana, which recently had the builders' trial, will take the Massachusetts' place in the dry dock, and will undergo a grooming for her official trial trip, which will take place off the coast of Massachusetts some time during the month of May.

The New York *Sun* says: "The result of the court-martial in the matter of the Kearsarge is a thing to be looked forward to with interest as a fair test of the manner in which naval officers discharge a disagreeable duty. Commander Heyerman will come before a court of his brother officers with a good reputation. Some of those who are to try him have doubtless more than once served with him aboard ship. Naval officers face their duty under such conditions with an old fashioned sense of responsibility that would be called chivalric if that word had not been damaged by abuse, and beneath all the chaff of the ward room there lies the feeling that its inmates are subject to an inner law of honor more bniding than any statute or naval regulation."

The new cruiser Columbia, which is to be placed in commission all completed on April 9, is the only vessel with three propellers ever built in this country.

The Barfleur, first class battleship recently added to the English naval forces, is now ready for sea, and the entire cost of the ship has been figured out and submitted to the naval authorities. It amounts to the very respectable sum of $3,160,000. Her armament consists of four 10-inch breech loading rifles, ten 4.7-inch quick firing guns, and no less than twenty 3-pounder quick fire guns. She is to be commissioned for foreign service.

AN INGENIOUS DEVICE.

Capt. P. McSherry, of Toronto, has contrived an ingenious device which will greatly facilitate the handling of skiffs and other sailing craft rigged with a leg-o'-mutton sail and what is called a split pole. Capt. McSherry's invention is literally a telescopic split pole. It is so arranged by means of part of it being a tube to slip down over the other part that reefing may be done in a skiff in a few minutes by the steerman without rising from his seat. There is a pin with a series of perforations, so that the sail may be set full out or let down to a mere leg-o'-mutton. One important advantage of the captain's device is that it will minimize the danger of capsizing. For ice boat rigging it is epecially advantageous, enabling the work of reefing, which usually occupies about half an hour, to be done in ten minutes. The captain has applied for a patent.

The proposed incorporators of the St. Clair and Erie Ship Canal include W. C. Baxter and W. C. Porter, of Minneapolis; L. F. Lukens, of Milwaukee; C. A. Towne, of Duluth; E. G. Amot, of Brooklyn; D. F. Henry, of Detroit; H. A. Olney, of Saltash; Eng., and Colonel David Tisdale, M. P., of Simcoe, Ont.

THE MARINE RECORD

ESTABLISHED 1878.

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CLEVELAND, O., MARCH 29, 1894.

IT is now in order for the statisticians of the daily papers to perpetrate a half column space on the lake marine, showing the moss-covered record of the opening of navigation for the past 'steen years. There is no law of cycles whereby future openings may be judged by the past. The present is with us, a live issue prompting action accordingly.

THE daily papers have discussed at great length the fueling arrangements entered into by a number of vessel owners, and a somewhat antagonistic feeling has been engendered thereby. It is not the purpose of the owners to absolutely injure their relations with shippers, by entering into contracts having arbitrary stipulations. At the same time "economy" is the watch word signaled all along the line, and surely when the wages' lists of the lake seamen who have to stand the brunt of spring blizzards and fall gales have been cut down to the lowest notch, those doing business ashore should be agreeable to assist the vessel even to a close shave of their former margins. At any rate, owners are determined to "sail close to the wind," and the item of fueling has long been on anything like an equitable basis, hence the effort to level the price of the needful commodity. All in the business can easily appreciate the situation if they will, without our quoting individual instances of mild extortion or the customary scale of prices at any port heretofore so marked between cargo and fueling.

THE reason for the persistent advocacy which we have indulged in relative to a proper codification of the laws governing the rules and regulations for the navigation of coast, lakes, rivers, harbors, bays, sounds, etc., has been clearly exemplified since the close of the recent annual meeting of the Board of Supervising Inspectors of Steam Vessels. The latest amendments of the pilot rules, pertaining to vessels passing each other in rivers and narrow channels, and the signals by whistle to be used, caused a number of vessel captains at one of the principal lake ports to become something more than suspicious over some provisions in the amendments, and they decided to take action regarding them. It was the opinion that the rules as amended could not be observed without great danger of collisions, and they resolved to write to Supervising Inspector-General James A. Dumont, at Washington, and find out what the amendments actually meant. A more careful examination of the supervising inspector-general's circular revealed the fact that the amended rule applied only to the Western rivers.

As noted in our issue of the 15 inst. the lake underwriters are more than ever awake to the value of a domestic register and rules for the classification of modern vessels. The annual meeting just closed was at least remarkable for the unanimity which prevailed and the somewhat startling innovations brought about in the matter of class and rating, also in the adoption of similarly worded policies to the English Lloyds, which has hitherto been held as too inclusive and liberal a form for lake service. A New York classification register published exclusively for lake practice, titled the American Lloyds, and presented to the board of underwriters under the most favorable auspices, met with no favor, while the disposition seemed prevalent to strengthen, by all means in their power, the present classification known as the Inland Lloyds Register. Builders and owners, however, may exercise their prerogative in so far as class and ratingts is concerned, and a proper standing in a universally recognized register, will, as we have previously stated, insure a fair consideration on all questions between assurer and assured not only on the lakes, but the world over.

LAKE UNDERWRITERS' MEETING.

The lake underwriters rightfully considered that the place to hold their annual meeting this year was at the center of lake shipbuilding and ship owning, hence, the honor was awarded to Cleveland, and on Friday night last the underwriters adjourned the annual session, after completing their work in a strict businesslike and unanimous spirit.

Perhaps the most marked feature throughout the meeting was a desire to checkmate marine insurance from drifting into foreign channels and no doubt, with this object in view, a suitable division was made in wooden hulls so as to arrive at the cream of this class of tonnage which would be susceptible to foreign influences at some future time and perhaps might be taken by the English companies in the same lists as the first-class iron and steel steamers are now taken. With this end in view the rate on the highest valued wooden hulls was made practically the same as for metal hulls, and the policies will be worded close after the English form. Of course the matter of rates will appear in the new tariff, but owners of wooden vessels will find that last year's rates rule again this year with the exception above noted, viz., that high classed wooden steamers are given the option of taking out a policy containing the liberal terms offered by English companies at an additional cost of 1½ per cent., thus making the rate on steel vessels under certain conditions 3 per cent. and the wooden steamer of same class 4½ per cent. As a further indication of the feeling relative to foreign competition which the underwriters could not apparently shake off, we note that the tariff on metal vessels has been revised so that insurance may be placed at home on the same conditions and rates as offered abroad, but the A2 vessels, both steel and wood, seem to have been given more than usual attention and the tariff given quite an advance, although in not a very marked manner.

An innovation which caused considerable thought among vessel owners this winter was considered by the underwriters and a disposition was found among the general agents to uphold the owners and builders in sheathing the bottom of metal vessels. To encourage this departure a rebate of 25 cents was allowed on all vessels sheathed. Relative to the fire hazard, owners' wishes seem to have again been consulted, and for a full indemnity under fire the rate was made on A1 and A1½, of one per cent for a straight fire policy. On A2 and A2½ one and a half per cent., and on B1 two per cent. to cover for a year. This revision of the fire insurance is a fairly liberal departure, nor do we think any owner would hesitate to pay one per cent. and get full indemnity to reimburse him for damage arising from any possible disaster. We also believe that the introduction of the collision clause will greatly tend towards keeping business at least nearer home. As regards the collision liability, the English form of policy being more liberal was adopted for lake service. Evidently this move was to shut off competition, as on the first-class risks, metal and wood, full indemnity as offered by the English conditions, was unanimously agreed to, viz., 4-4 collision, covering collision with other vessels, wharves, piers, rocks, etc., the latter feature being the "touch-and-go" clause, and the rate named for this insurance is one per cent. The old form of collision clause used by wooden vessels covered simply ¾ collision, leaving the uninsured liability of ¼, which the owner had to assume, and also that the total expense would have to amount to over $2,500 before any claim would be allowed.

Outside of what may be considered somewhat of an additional hardship put on A2 wooden vessels, which it should be remembered the underwriters claim has been non profitable business, we are inclined to think that the underwriters have been liberal in their new policies and they perhaps have made rates as low as they can be reasonably expected to, though at this writing it is difficult to speak with freedom, for each of the underwriters when approached with an inquiry relative to the probable or completed action were very diffident about expressing their reasons for making tariff changes and concessions as noted in the foregoing; but what we have stated particularly shows the feeling and causes that actuated the underwriters during the session.

Relative to the matter of valuations, all of the tonnage has been subjected to a reduction ranging from 10 per cent. of the highest valued to 25 per cent. of the lowest class of valuations, and there will be no opportunity to increase the registered value as has been the custom in the past, which our readers will recollect, allowed an increase of ten per cent. In the future the limit of value is the value expressed in the Register and it is possible that even this will be shaded by limiting the value of the lower grade of vessels to an arbitrary per centage of the value given in the Register. However, the new Register is expected to be from the press about April 10 to 15, and then actual individual valuations will be publicly known.

TO DESTROY AMERICAN SHIPBUILDING.

The "Fithian Free Ship Bill," now in the hands of Congress must at least be considered as a well directed effort to cripple if not to temporarily destroy the American shipbuilding industry in its present stage of comparative efficiency of output.

We mark well the difference existing between the skill displayed in the finished ship built at home, and the opportunities given to American builders to improve upon European productions, as against the vast fleets annually turned out at foreign shipyards, and the difference is eminently in favor of the American industry, notwithstanding the lack of opportunities that we labor under in the want of orders, to successfully demonstrate superior talent gained by a terribly limited experience of metal shipbuilding, and now even this modicum of estimable results is in danger of being wrested from us and placed in the hands of foreigners.

The Tracey Bill, seeking American registry for foreign built craft is only driving home the wedge entered May 10, 1892, when the two Atlantic liners were nationalized, and, according to our light, Congress should be satisfied with nothing less than the most complete investigation on this subject, before legislating the American shipbuilding industry out of existence. In this connection, Mr. Cramp, of Philadelphia, when in Washington last week opposing the passage of the "Fithian Free Ship Bill," truthfully stated that the construction of merchant vessels in the United States would cease if this bill should become a law, and, although Mr. Cramp clearly alluded to over-sea tonnage, the assertion is equally true of the lakes, for a large amount of the million tons of idle and low powered steamboats now held for disposal by British owners, might easily be cut in two, bulkheaded and floated through the St. Lawrence system of canals, to enter into competition with the high classed valuable steam tonnage of the lakes, for of course under American registry this hybrid tonnage would be given all coastal privileges between United States ports.

It is also worthy of remark to note the ammunition which we would be pouring into the enemy's magazine by purchasing their ships, nothing would suit the Clyde shipyards better than to be kept busy exchanging iron tanks for American dollars, and the transfer might go on indefinitely so far as the foreigner was concerned. Yet a stronger incentive than destroying the shipbuilding industry and probable future competition in the United States has been pointed out by Mr. Cramp, who stated recently that: "The English government itself could afford to pay $100,000,000 for the diplomatic advantage which a ready asylum for its merchant marine under our flag would give them in dealing with other naval powers. England's weak spot in war is her merchant marine; that is the heel of her Achilles. Her inability to transfer it to a neutral flag is a bond to keep the peace in an untold sense." In reply to the question whether the English navy is strong enough to take care of her merchant fleet, Mr. Cramp said: "No, sir. Remember the Alabama. War between England and France or Russia would turn fifty Alabamas loose on the ocean. For every one that the fast British cruisers could catch or destroy, two would come out. Insurance rates would bankrupt owners of vessels and cargoes. In a word, the English dare not fight a naval power without a neutral asylum for their fleet." And, if it is a pertinent inquiry to place at this time before the advocates of the free ship theory, we would like to know what the ultimate cost to the American citizen would be, before skill, capital and material could again be got together to repair, build and equip national tonnage, while all of the foregoing by-play was going on. In a word, the Fithian and Tracey theories are mythical in their so-called advantages, but terribly disastrous to the country if allowed to be worked out to their ultimate results.

THE recent forced sales of two or three steamers at somewhat low figures gives no indication of the value at which lake steamers are held. Besides a forced sale being generally a sacrifice, the class of tonnage disposed of had also seen its best days. A paragraph has gone the round of our exchanges, dwelling upon these low figures and accepting the indication as a criterion of a general hard drop in floating property, but as we have said, the price paid for the steamers St. Paul, W. P. Thew and Business, form no basis of general values. Other causes rather than legitimate rates of value led up to their disposal at this time.

THE United States expended for the improvement and conservancy of Rivers and Harbors up to 1890, a total of $207,043,870, apportioned in round numbers as follows: The Great Lakes $42,000,000; the Atlantic coast, $57,000,000; the Gulf of Mexico, $20,000,000; the Mississippi Valley, $76,000,000; and the Pacific coast, $9,000,000.

VISIBLE SUPPLY OF GRAIN.

The stocks of grain in Chicago elevators and afloat last Saturday evening were 22,236,000 bushels of wheat 12,724,000 bushels of corn, 835,000 bushels of oats, 209,000 bushels of rye, and 23,000 bushels of barley. Total, 36,027,000 bushels of all kinds of grain, against 31,619,000 bushels a year ago. For the same date the secretary

of the Chicago board of trade states the visible supply of grain in the United States and Canada as 72,163,000 bushels of wheat, 19,164,000 bushels of corn, 2,711,000 bushels of oats, 440,000 bushels of rye, and 689,000 bnshels of barley. These figures are smaller than the corresponding ones a week ago by 1,096,000 in wheat and 575,000 in corn. The visible supply of wheat for the corresponding week a year ago decreased 812,000 bushels.

LAKE CARRIERS' FINANCE COMMITTEE.

The regular semi-monthly meeting of the finance committee of the Lake Carriers' Association was held in the office of president Capt. James Corrigan on Tuesday afternoon. Among those present was J. J. H. Brown, of Buffalo, a member of a committee which had been appointed to wait on the grain shovelers' union at Buffalo to try to secure a reduction in the cost of handling grain, the price of which is $4.50 per thousand bushels on steamers, $4 on schooners, and $1.25 for trimming canal boats. The grain men absolutely declined to consent to any reduction, and as there is an excellent understanding between the elevator men and the grain shovelers, there was nothing left for vessel owners to do but submit.

Mr. Brown said that there would be very little coal shipped out of Buffalo before the first of May and that there was a disposition on the part of Buffalo owners to delay the start until that time.

A number of the Cleveland owners have also decided not to fit out until May 1 and some have notified their masters that it will probably be later when the start is made.

Owners have so far been very slow in sending in their applications for membership, and Capt. George P. McKay and Harvey D. Goulder were appointed a committee to urge owners to join at once. It was also decided to open a shipping office at Milwaukee this year.

ANNUAL REPORT OF THE DOMINION MINISTER OF RAILWAYS AND CANALS.

The annual report of the minister of railways and canals has just been laid on the table of the House. The report of canals shows the total amount charged to capital account, expended by the Government for construction and enlarging on each of the canals from the period prior to Confederation down to June 30, 1893, as follows:—Lachine Canal, $9,686,684; Beauharnois Canal, $1,611,690; Soulanges, $264,572; Williamsburg, $2,940,-551; Cornwall, $4,649,574; St. Lawrence surveys etc., $943,178; Murray, $1,247,470; Welland, $23.762,294; Sault Ste. Marie, $1,475,340; St. Anne, $1,170,215; Carillon and Grenville, $4,025,553; Culvute Canal, $379,494; Rideau, including the Tay branch, $4,560,285; Trent, $1,088,483; St. Ours Lock, $121,537; Chambly, $637,206; St. Peter's, $645,994, making a total on construction account of $59,210,131. In addition to the above there has been expended for renewals, repairs, staff and maintenance the further sum of $71,310,793, making a grand total of $130,520,924. The total revenue received during the same period amounted to $9,850,578.

The total expenditure for the year ending June 30, 1893, was, on construction account, $2,069,573; for renewals, $196,185; for repairs, $204,759; for staff and maintenance, $291.588. The net canal revenue for the fiscal year was $357,089, as against $324,475 for the previous year, an increase of $32,614.

The amount of refunds of tolls on grain and other food products was $40,032, as compared with $52,270 in the previous year. The number of tons of freight moved on the Welland Canal was 955,554, of which 528,-569 tons were agricultural products. On the St. Lawrence Canals the quantity moved was 966,735 tons, of which 464,672 tons were agricultural produce. On the Ottawa Canals the total quantity of tons moved was 647,011 tons, of which all but 20 tons was the produce of the forest. There passed to Montreal by way of the Welland and St. Lawrence Canals 261,954 tons of grain, and of this quantity 195,244 tons were exported. The number of tons of grain passing down the Welland Canal from United States ports to United States ports was 201,540.

During the season a total of 268,830 tons of grain arrived at Kingston. Of this quantity Canadian vessels carried 158 cargoes, aggregating 159,000 tons, and United States vessels carried 89 cargoes aggregating 109,000 tons. Only 4,341 tons were taken to Ogdensburg and trans-shipped to Montreal.

The minister is unable to report the new channel at the Galops Rapids as safe for the passage of vessels drawing over 9 feet of water, and adds: "To fully carry out the design some work will be necessary in order to obviate certain cross currents, the action of which require to be ascertained by actual experience after the excavation of the channel. He states that Mr. Kennedy's report shows that there are obstructions in the channel by which the navigable depth of water at certain places is reduced considerably below that required for vessels drawing 17 feet. The work was reported by the superintending engineer to be completed in 1888.

The Soo Canal, which is in course of construction, is, by agreement with the contractors, to be completed by July 1, 1894, and to admit vessels drawing 20 feet of water. The expenditure on this work during the past year amounted to $590,000. For the first half of the current fiscal year, there has been expended a further sum of $768,546. The minister states that there is every prospect of completion to be ready for operation next summer.

PROBABLE CONTRACT FOR A PASSENGER STEAMER.

As we go to press a report, not yet confirmed comes from Chicago that the directors of the Goodrich Line decided at their last meeting to build a handsome passenger steamer for the Lake Michigan trade. The new vessel is to equal if not surpass in all particulars the large steel steamer Virginia, recently built by the Globe Iron Works Co., of Cleveland, for the same line, and the question of the new construction is understood to rest between the builders of the Virginia, and the Detroit Dry Dock Co.

The cost of such a steamer as the Goodrich Line would now contract for, would be in the neighborhood of $200,000, and as it is more particularly a question of figures between the two well known shipbuilding firms, the result of the competition will be watched with no small degree of interest, certainly the record of the whaleback steamer Christopher Columbus must be markedly discounted by any new tonnage desiring prestige and patronage in the now well developed Lake Michigan passenger trade.

OBITUARY.

CAPTAIN DEVNEY.

Captain James P. Devney, of Ashtabula, whose precarious condition, resulting from a recent stroke of appoplexy, had caused his family and friends much anxiety, passed away on Wednesday last. For over a week previous to his death he was unconscious and the last long sleep came peacefully. Captain Devney was 71 years of age. He moved to Ashtabula with his family from Conneaut in 1879, since which time he had resided at the Harbor. He opened a shipyard and from that time up to the day he was stricken with apoplexy he was actively engaged in the business. Hundreds of vessels have been repaired any many fine tugs have been built under his direction. Few men were better known on the lower lakes, and those who were brought into contact with him always spoke highly of his unfailing integrity and many excellent traits of character. His funeral took place on Saturday.

USE OF THE SCRIVE BOARD.

To the Editor of The Marine Record:

CLEVELAND, O., March 28, 1894.

In your issue of the 15th inst is the report of an interview with Mr. J. F. Waddington, late superintendent with Messrs. Sewall & Co., Bath, Me., relating to his observations on shipbuilding practices in this country and his remarks on the subject are deserving of careful perusal, especially where he speaks of the absence of the apprenticeship system, the difference in the inspection of vessels under construction from that of Lloyd's surveyors and the use of wooden moulds instead of the scrive board in shaping the frames of metal vessels. On this latter point another writer in one of the English technical journals recently took occasion to air his astonishment at the survival of this ancient practice in a progressive country like the United States, and there is no doubt but it must strike an up-to-date shipbuilder as peculiar that the more modern, less expensive and more accurate method of working from the scrive board has not come into universal use, although, of course, it is hardly fair to expect that the new method could be made to supplant the existing one and be worked with equal facility. It would take the workmen some time before being able to use it to the best advantage. I may say that we used the scrive board in building the S. S. Manitoba and all the other steel vessels built at Owen Sound, Canada, as also at Toronto; and last winter the writer introduced the scrive board at Hamilton, Ont., where they had formerly worked with the wooden moulds; now, I understand, they are working from the "scrive" at the Globe Iron Works shipyard in the construction of the new steel tugs for Messrs. Smith, so that its general adoption is only a question of time.

In this connection the subject of inspection of vessels under construction is one of great importance to owners and in this may be included the construction of engines and boilers and all works of repair, as although the inspection made for classification purposes is good, so far as it goes, such visits are not frequent enough to protect the work from the mistakes or carelessness of the workmen. There should be a daily inspection made of all such works and a careful superintendence of all details as mistakes will occur in the most reputable workshops, and defects show up which men will not expose to their employers if they can help it, more especially where piece-work is the rule. For an instance of how workmen will deceive their own employers we have only to look at the recent unfortunate affair which happened to Messrs. Carnegie in the making of armour plates for the government vessels.

ROBERT LOGAN.

PATENTS.

The following list of patents of interest to maritime people has been filed at Washington: Dredging machine, George H. Titcomb, Boston; reciprocating propeller for vessels, William K. Hogan, Bradford, Pa.; marine propeller, Amos H. Carpenter, Stockton, Cal.; self-closing hatchway, William R. Wemple, New York, N. Y., assignor to the Automatic Hatch Door Co., same place; dredging apparatus, Christopher Gullman, New York, N. Y.

Snatch Block. Thomas R. Ferrall, Bridgeport, Conn.

Dredge-bucket. Erastus S. Bennett, Denver, Col.

Propelling Mechanism for Vessels. August Thomas, Petersburg, Ky.

Combined Life-boat and Ship's Safe. Cuthbert Gardner, Redcar, England.

APPOINTMENT OF MASTERS AND ENGINEERS.

Maytham's Tug Line, Buffalo, N. Y.: Gee—captain, H. Vroman; engineer, J. Connors. Acme—captain, C. E. Nash; engineer, George Treatis. Cheney—captain, John Glover; engineer, W. Lenox. Maytham—captain, J. Farrell; engineer, Tim. Higgins. Kelderhouse—captain, T. Doyle; engineer, Thomas Higgins. Alpha—captain, J. Hannett; engineer, James Higgins. Ingram, captain, Charles Smith; no engineer appointed. The tug James Ash will not be put to work until the seuson fairly opens.

David Wallace, Lorain, O.: Vega—captain, T. H. Brown; engineer, Charles Sterling. Vulcan—captain, W. H. Wallace; engineer, John McMonagh. Robert Wallace—captain, A. Oldorff; engineer, E. Stoddard. Schooner, David Wallace—captain, A. Porter.

C. E. Benham, Cleveland, O.: Brittanic—captain, Ira B. Mansfield; engineer, W. M. Eddy. Quito—captain, C. E. Tuttle; engineer, J. C. Johnson. H. B. Tuttle—captain, W. P. Benham; engineer, I. M. Beers. Nahant—captain, J. D. Mullen; engineer, J. Winship. Tug, C. E. Benham no appoinment. Schooners, Queen City—captain, William Allen. H. C. Richards—captain, Charles Fredericks.

James McBrier, Erie, Pa.: Fedora—captain, F. A. Fick; engineer, John J. Stephens. Nyanza—captain, Donald McDonald; engineer, John Beauchard. Uganda—captain, C. H. Wilson; engineer; William Mead.

American Steel Barge Co., West Superior, Wis.: Colgate Hoyt—captain, W. H. Kilby; engineer, Gilbert Newton. E. B. Bartlett—captain, M. A. Boyce, engineer. A. D. Thompson—captain, A. R. Robinson; engineer, Ernest Sampson. Thomas Wilson—captain, A. P. Chambers; engineer, George Blauvelt. Samuel Mather—captain, John H. Smith; engineer, Irwin Marshall. James B. Colgate—captain, Robert R. Smith; engineer, J. Hodgson Pierce. Barges, 101-2—captain, George Gallant. 103—captain, F. E. Johnson. 104—captain, Carl D. Secord. 105—captain, W. C. Butts. 107—captain, H. M. Boyce. 109—captain, Sam. E. Lewis. 111—captain, George W. Smith. 115—captain, Wm. H. Dick. 116-7-8—captain, Thomas Tobin. 126—captain, J. C. McLean. 127—captain, Thomas J. Robinson. 129—captain, E Emanuelson. 130—captain, Wm. S. Hoag. 131—captain, James Leahy. 132—captain, George Holdridge. 133—captain M. C. Cameron. 134—captain, Wilbur Holdridge.

Ashley & Dustin, Detroit, Mich.: Passenger steamer Frank E. Kirby—captain, A. J. Fox; engineer, E. Perry. Wyandotte—captain, J. Desena.

Minnesota Steamship Co., Cleveland, O.: Steamers, Mariposa—captain, G. B. Mallory; engineer, Alonzo Arnold. Maritana—captain, F. D. Root; engineer, George Waterbury. Masaba—captain, J. P. Cottrell; engineer, George Arnold. Maritana—captain, Andrew Graves; engineer, S. H. Miller. Manola—captain, C. H. Bassett; engineer, Malcom Jamieson. Mariska, captain, Alex. McFarland; engineer, R. L. Peck. Maruba—captain, Fred. Hoffman; engineer, B. F. McCanna. Matoa—captain, F. A. Graves; engineer, A. R. Brooker.

John Corrigan, Cleveland, O.: Steamer Aurora—captain, Robert Donaldson; engineer, Christopher Castle. Schooners, Adams—captain, Andrew McKay. J. I. Case—captain, William F. Hormig.

Vulcan Transportation Co., Detroit, Michigan: Forest City—captain, Joseph Sanders; engineer, William Harling. R. J. Hackett—captain, Henry Sanders; engineer, Thomas Harding. Schooners, H. H. Brown—captain, E. M. Fuller. McGregor—captain, Joseph B. Hochrath.

R. P. Fitzgerald & Co., Milwaukee, Wis.: Philip D. Armour—captain, F. D. Chamberlin; engineer, J. R. Mason. Wiley M. Egan—captain, Fred. Howe; engineer, John McCaffery. R. P. Fitzgerald—

captain, Leslie E. Boyce; engineer, M. B. McNeil. John Plankinton—captain, Lewis H. Powell; engineer, Wm. Fell. Denver—captain, Peter Christensen; engineer, John Smith. Omaha—captain, Duncan Stalker; engineer, Alex. Staley. Pueblo—captain, M. Fitzgerald; engineer, James Reagan. Topeka—captain, Albert Gibbs; engineer, John Cantwill.

W. A. Livingstone, Detroit, Mich.: Livingstone—captain, W. H. Wilson; engineer, Alex. Morison. T. W. Palmer—captain, Geo. F. Stilphen; engineer, Robert B. Hodge.

Montreal Transportation Co., Kingston, Ontario: Steamers, Active—captain, John Gaskin. Bronson—captain, Joseph Murray; engineer, R. Hepburn. Glide—captain, C. Martin; engineer, W. Spencer. Glengarry—captain, J. N. Mawdesley; engineer, C. McSurley. James A. Walker—captain, John Boyd, engineer, R. Marshall. D. G. Thomson—captain, J. Murray; engineer, G. Henderson. Jessie Hall—captain, J. Martin; engineer, A. Barton. Bannockburn—captain, A. McMaugh; engineer, H Thurston. Schooners, Minnedosa—captain, J. Irwin. Selkirk—captain, J. Fleming. Winnipeg—captain, C. Staley. Kildonan—captain, F. Lafrance. Jennie—captain, R. Bradley. Regina—no appointment is yet made.

John T. Edgar, Saginaw, E. S., Mich.: C. H. Green—captain, John C. Garey; engineer, Charles Allby. Oscoda—captain, George W. Ryan. Schooners, Our Son—captain, William A. Edgar. Genoa—captain, D. C. Ryan. C. G. King—captain, Peter Edgar. A. C. Keating—captain, Patrick Ryan. Ida Corning—captain, Peter H. Edgar.

William Dulac, Mt. Clemens, Mich.: F. R. Buell—captain, C. W. Woodgrift; engineer, C. F. Lamb. A. Weston—captain, M. Hyde; engineer, Jno. Hibberd. Canisteo—captain, W. J. Lynn; engineer, C. S. Peltier. Norwalk—captain, J. S. Ruby. Chas. A. Street—captain, A. P. Gallino. Schooners, A. Stewart—captain, George Pollock. Eleanor—captain, Frank Duboy. Jennette—captain, Ed. Moore. Elvina—captain, Wm. Campau. Fulton—captain, Frank Laforge. J. B. Lozen—captain, John B. Lozen. S. B. Pomeroy—captain, Jas. O. Robertson.

John W. Moore, Cleveland, Ohio: J. W. Moore—captain, Richard Neville; engineer, Walder. Louisana—captain, John Colter; engineer, Stone. James Pickands—captain, J. C. Beach; engineer, Elmer Ennis Marquette—captain, Edward Chilson; engineer, H. T. McAuley. Colonial—captain, J. H. Stover; engineer, Masters.

Republic Iron Co., Cleveland, Ohio: Republic—captain, J. A. Landfair; engineer, Wm. Lowe. Specular—captain, E. T. Rattray; engineer, A. E. Bury. Continental—captain, Charles Hinslea; engineer, John Smith. Schooners, Magnetic—captain, Wm. Megarvey. Grace Holland—captain, Harry Rogers.

The Hand & Johnson Tug Line, Buffalo, N. Y.: Tugs, Cascade—captain, Patrick Linn; engineer, Thomas Reily. Hibbard—captain, Alex. Walters; engineer, James Reily. Davis—captain, George R. Napier; engineer, Henry Bullard. Danforth—captain, John Whalen; engineer, Daniel Mahoney. Babcock—captain, Wm. Doyle; engineer, Elmer Hand. Byers—captain, James Hazen; engineer, James Byers. Johnson—captain, Joseph Lawson; engineer, James Gray.

Lake Superior Iron Co., Cleveland, O.: La Salle—captain, Henry W. Stone; engineer, Warren Tilton. Joliet—captain, P. L. Millen. Wawatam—captain, Ed. Mooney; engineer, E. Dempsey. Griffin—captain, Orville Green; engineer, Geo. W. Mason. Andaste—captain, Wm. Ames; engineer, Frank Steadley. Choctaw—captain, John Ward; engineer, Frank B. Smith.

Grummond Line, Detroit, Mich.: State of Michigan—captain, Fred. Dale; engineer, George L. Simmons. Flora—captain, David Brown; engineer, William Campbell. Atlantic—captain, Robert E. Ferguson; engineer, Walter Harling. Tugs, M. Swain—captain, James Tormey; engineer, James Southgate. Champion—captain, James J. Jarmin; engineer, Dan Grieves. Crusader—captain, Thomas Carney; engineer, James R. McGrath.

Lakewood Transportation Co., Lakewood, O.: Steamer V. H. Ketcham—captain, William S. Mack; engineer, William Young. Schooner W. D. Becker—captain, George Mackie.

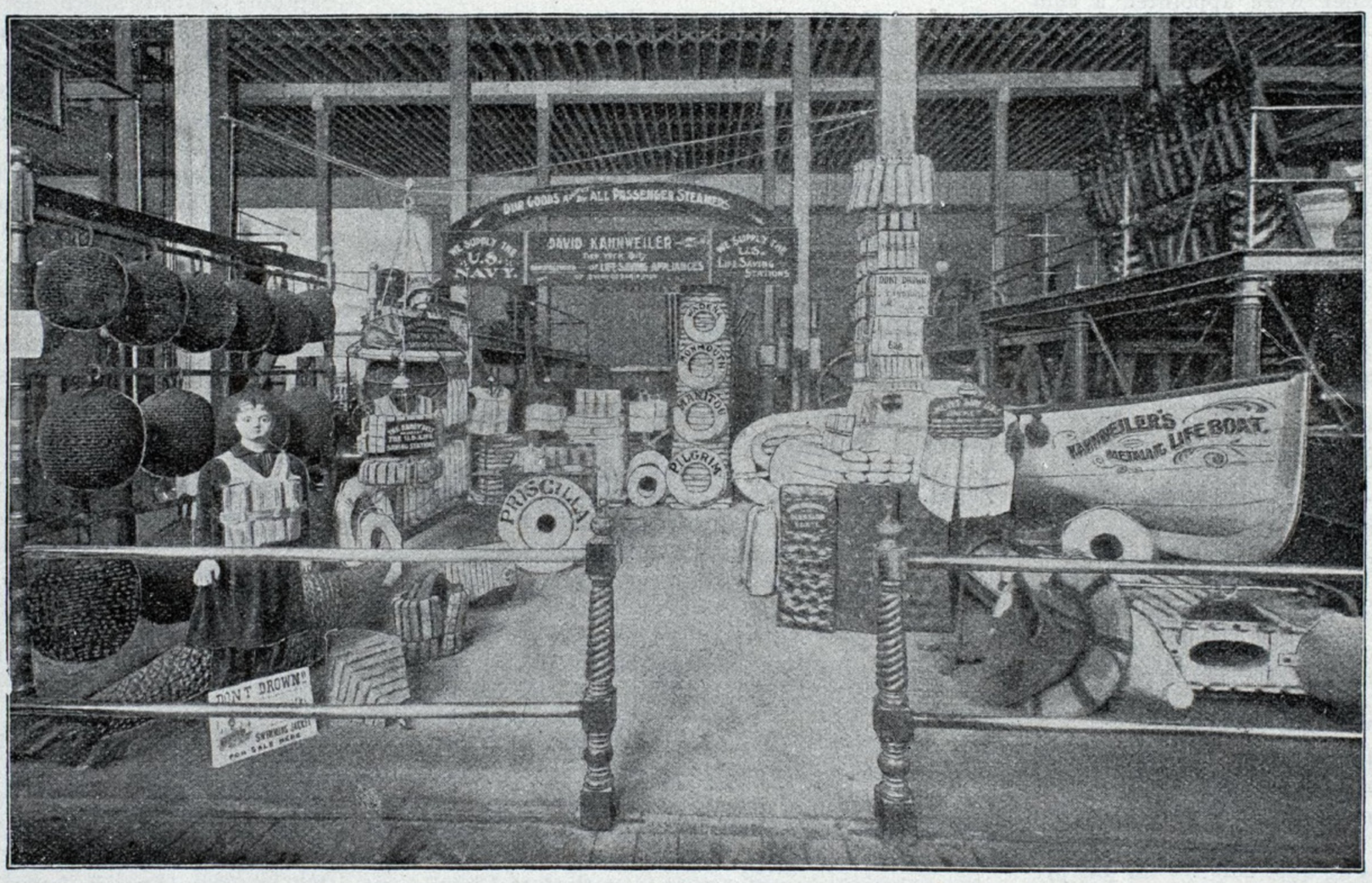
Adams & Farwell Transportation Co., Detroit, Mich.: Tom Adams—captain, Duncan Nicholson; engineer, James Kelley. Jesse H. Farwell—captain, Dan J. Duncanson; engineer, W. F. Cullen. F. E. Spinner—captain, James Laframboise; engineer, John Johnston. George L. Colwell—captain, A. C. Smith. Schooners, J. H. Rutter—captain, S. L. Ketchum. J. Godfrey—captain, George Kumra. D. P. Dobbin—captain, ——

LIFE-SAVING EXHIBIT.

ILLUSTRATED.

The accompanying engraving shows the exhibit that David Kahnweiler, of New York, gained honors with at Chicago. We note also that the Secretary of the Treasury has just appointed on the recommendation of the Board of Supervising Inspectors of steam vessels, his new consolidated cork life preserver.

Established in 1872, this manufacturing firm of improved life-saving appliances has kept ahead of the demand and in the face of keen competition carried off the highest premium awarded by the World's Columbian Exposition, viz., four medals and a certificate of merit. This success has only been attained after years of close application to the business of supplying the naval as well as the mercantile fleet with the latest and best to date, and as Kahnweiler builds his own metallic and wooden life boats, and life rafts, besides manufacturing life belts, cork jackets, ring buoys, fenders, cork cushions, marine drags or sea anchors, etc., nothing but the best in type and material is permitted to leave his works.



KAHNWEILER'S LIFE-SAVING GEAR, EXHIBITED AT CHICAGO.

It is gratifying to find an American house that has kept so well in advance of the times in this special industry, notwithstanding the decrease in the American tonnage engaged in the over-sea trade, though no doubt the phenomenal increase of tonnage on the Great Lakes and a healthy condition of the coasting trade has had much to do with the ultimate success and enviable reputation for good goods now sustained by David Kahnweiler. With the cut of the exhibit we have had forwarded from New York, an illustrated catalogue and price list of the life saving equipment manufactured by the firm, an epitome of the way for any one contemplating a new fit-out, it also contains the rules and regulations of the steamboat inspection service relative to life-saving appliances. Especially to yachtsmen Mr. Kahnweiler says: "I am placing before the yachting world the celebrated Woolsey Life Buoy or Raft, which has been acknowledged for the last five years as the best raft for quick saving of life. This 'buoy-raft' is being made now at my factory, 19 and 21 Roosevelt street, New York, in sizes to suit yachts and small launches. Being light, they can be easily handled by one person. When capsizing, the raft will float automatically. The material of construction is of such buoyant character that it will float as many as can collect around it. No yacht owner should deprive himself of the sense of security and comfort secured by this article."

The Ontonagon *Miner* says that many miners in the Upper Peninsula are leaving there and going to South Africa.

NOTES.

The records and finding of the Court of Inquiry as to the responsibility and the conditions attending the wreck of the Kearsarge on Roncador Reef were handed to Secretary Herbert March 13. It is the impression among naval officers that it will result in a court martial. All the officers on board the ill-fated craft at the time she struck on Roncador Reef have been detailed with the exception of her commander, Comdr. Oscar F. Heyerman, and the navigating officer, Lt. Comdr. C. W. Lyman.

COMMANDER Z. L. TANNER, of the U. S. Navy, now in command of the Fish Commission steamer Albatross, of the Pacific Coast, in writing of the windlass on board his vessel, furnished by the American Ship Windlass Co., of Providence, R. I., says, in connection with an order for a new wildcat to replace one on the windlass which had become worn by constant use: "It may be a matter of interest to you to know that this is the first time the windlass has required repairs in its eleven years of constant use, and even now we might run on a year or two in case of necessity. The port side of the windlass is used constantly, hence the starboard wildcat is as good as new."

GEORGE WARRINGTON, Chicago, Ill., issues a catalogue illustrating and describing the Warrington water-tube marine boiler, which he manufactures. These boilers are, more especially designed for use in steam launches, yachts, and moderately small craft.

THE WM. CRAMP & SONS, Philadelphia, will build a steamer 251 feet long, 37 feet beam and 17 feet depth of hold, to tow coal barges. The new vessel will carry 1,600 tons of coal and tow three barges at the same time. Ten new wooden barges to carry 1,600 tons of coal each, are now being built at Noank, Conn., for the Reading Coal & Iron Co., and will be ready for delivery in June, July and August. The Cramp Shipbuilding Co. has reached a point where it is necessary to have more room or refuse large and valuable contracts. The firm has now over $20,000,000 in contracts for ship building, and if they are not able to do the work they are required by these contracts to do, the loss will be very heavy.

WHAT is probably the heaviest machine tool of its class ever constructed in Scotland, has just been completed by Messrs. Crow, Harvey & Co., of ParkGrove Iron Works, Kinning Park, Glasgow. It is a shearing machine for dealing with the heaviest boiler and ship shell and deck plating, and is capable of shearing steel in the cold state up to 2 inches in thickness and 6 feet 6 inches in width. The tool, which is driven by two 20-inch cylinder engines of 24 inch stroke, and geared up by steel gearing, is of 112 tons total weight, and has been manufactured for the new works of the Glasgow Iron and Steel Co., at Wishaw.

The Roberts Safety Water Tube Boiler Co., of Red Bank, N. J., and 18 Cortlandt street, New York, are building a boiler for Messrs. G. E. & C. A. Painter, of the Pittsburgh Iron Works for the new steel steam yacht which they are constructing to make 25 miles per hour. The boiler will carry 250 pounds of steam. Messrs. Painter Bros. are the owners of the Gwendoline which has had a Roberts boiler for the past three years and which has several times attained a speed of between 19 and 20 miles per hour. The Gwendoline is only about 50 feet long but is the fastest boat on the Ohio, Monongahela and Allegheny rivers. Her boiler has been forced with the best soft coal and exhaust in the stack for the past three seasons and has never developed any weakness or defect even with the muddy river water which is used in it.

PROPOSALS.

U. S. ENGINEER OFFICE, 2258 Wabash avenue, Chicago, Ill., March 15, 1894—Sealed proposals for the design, manufacture and erection of the superstructures of one metal single stack railway swing bridge, and one metal highway swing bridge, at Milan, Ill., will be received at this office until 12 M., central time, Tuesday, May 1st, 1894, and then publicly opened. Specifications, blank forms, and all available information will be furnished on application to this office, W. L. MARSHALL, Capt., Corps of Engineers.

WILLIAM L. BROWN, President.
WALTER F. COBB, Vice President and Treasurer.
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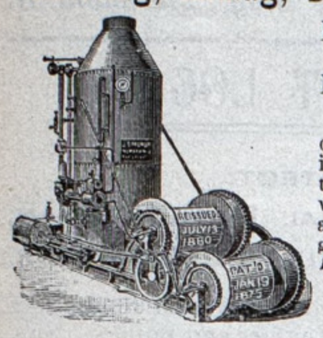

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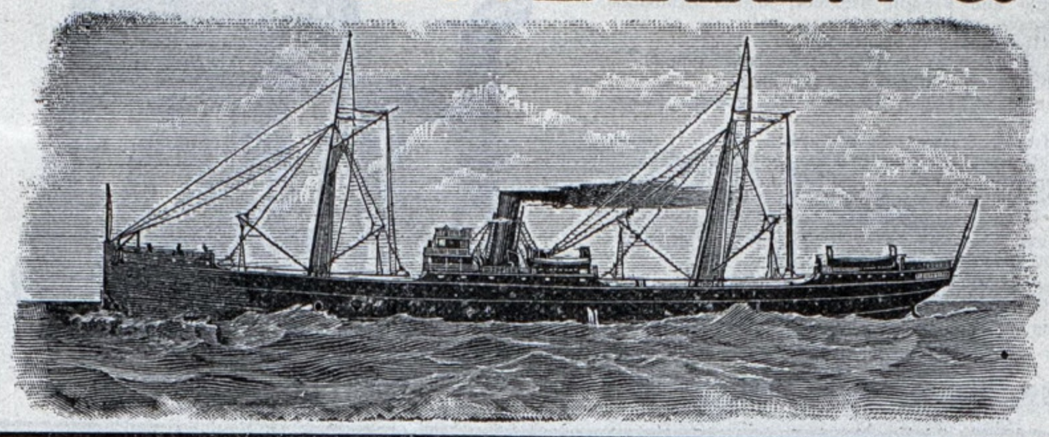

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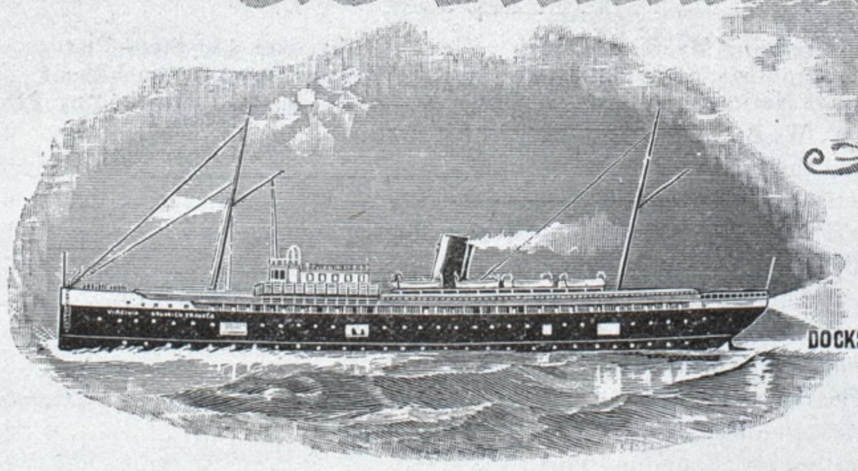

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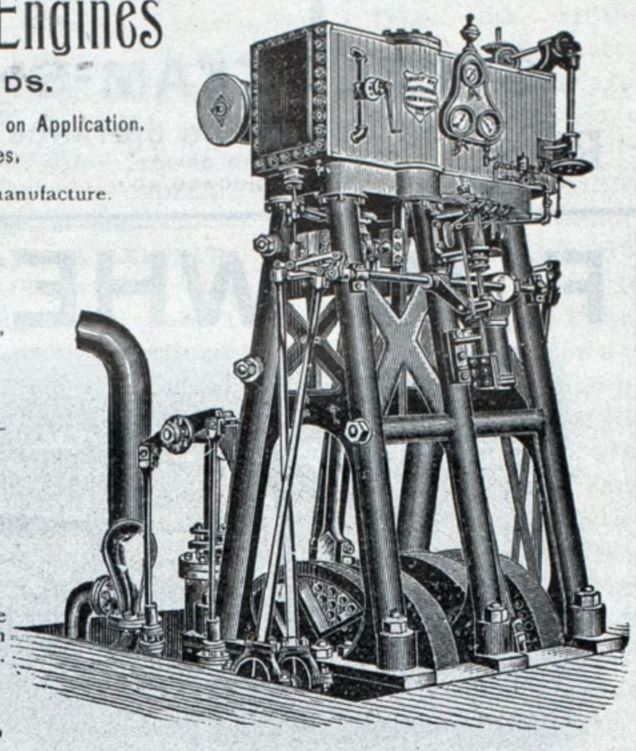

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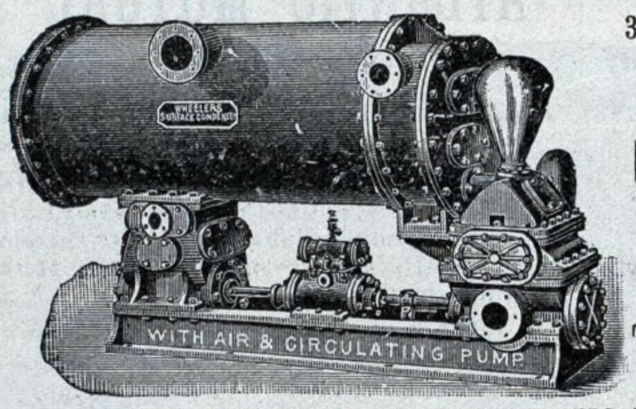

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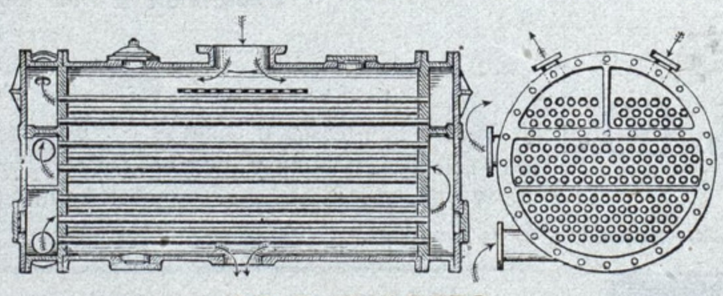

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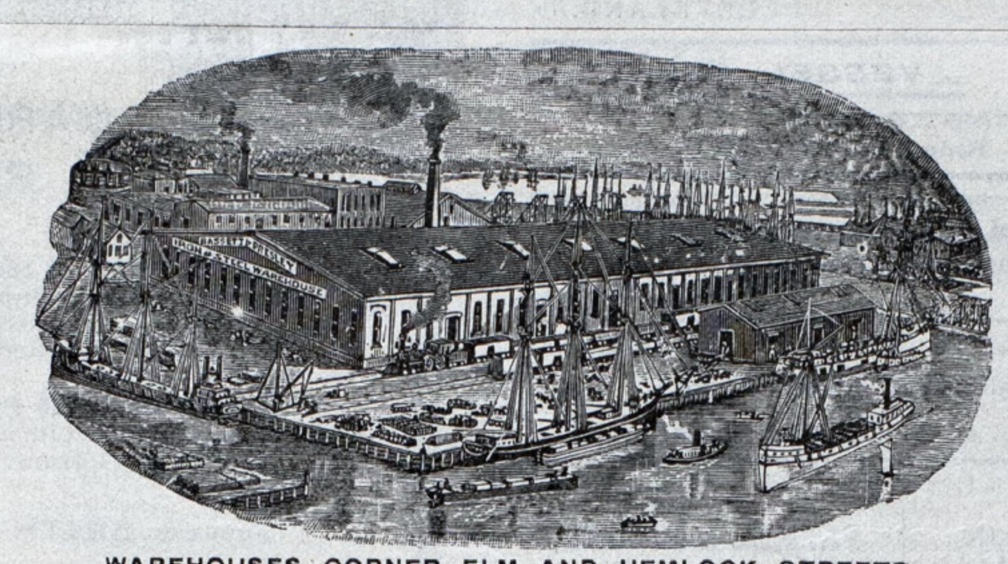

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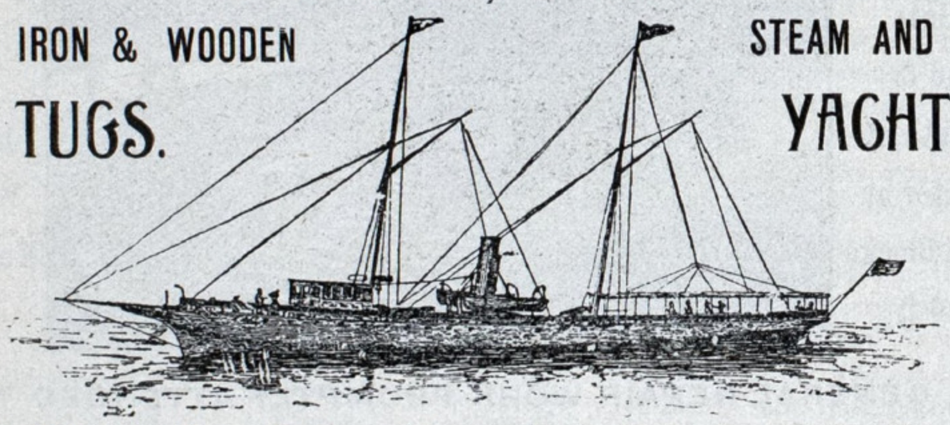

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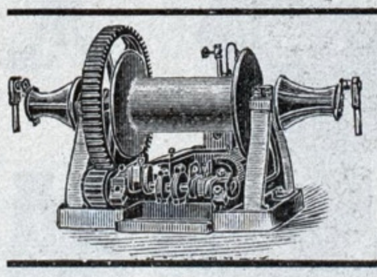

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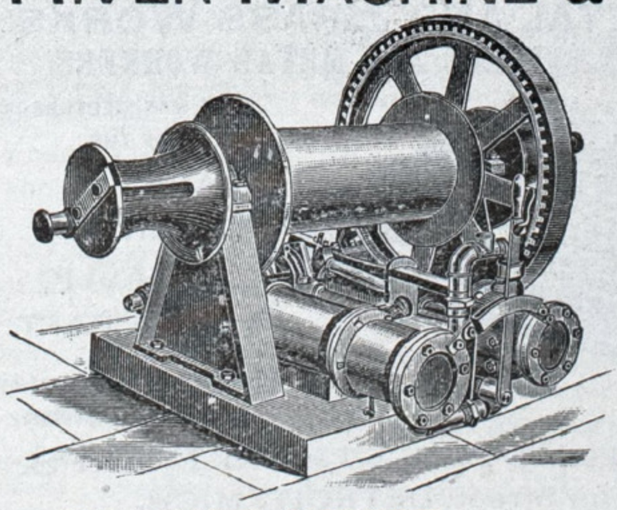

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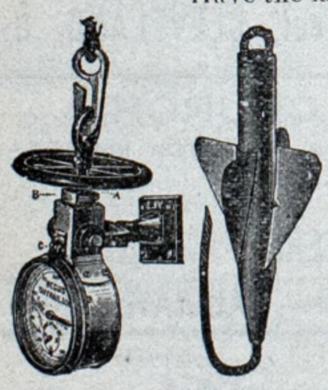

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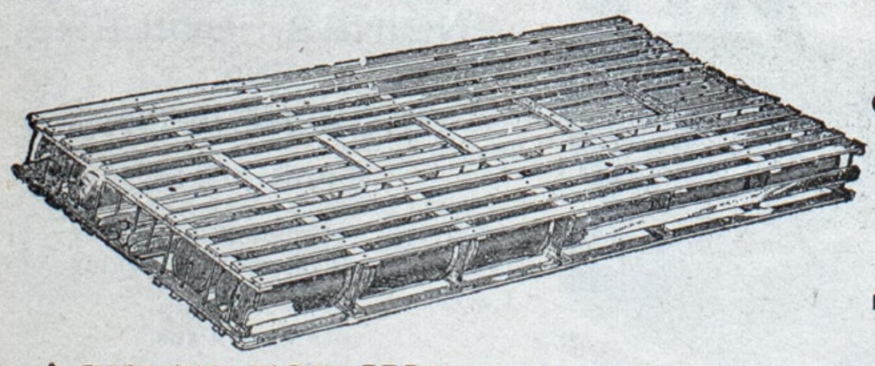

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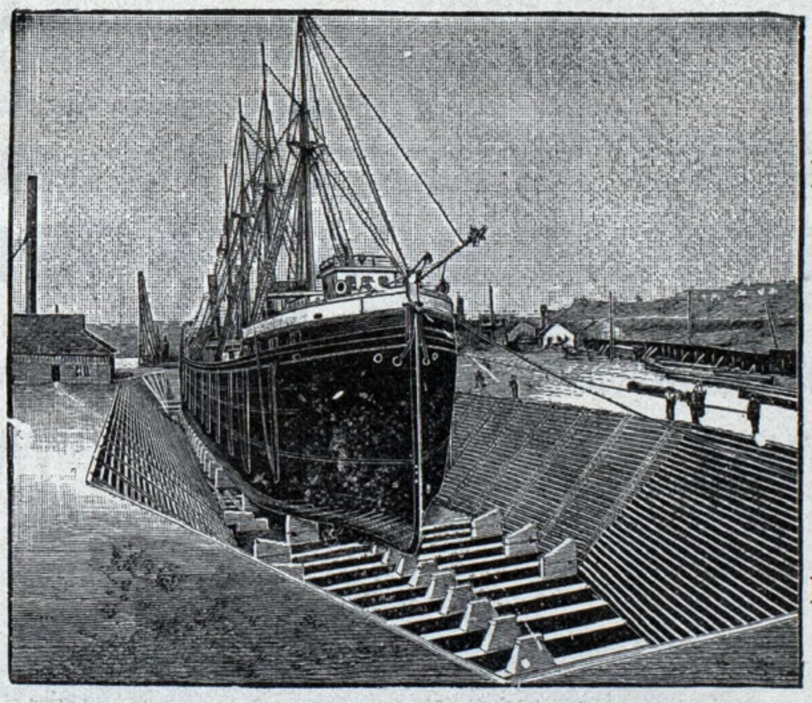

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